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NHH

Valuation of Grieg Seafood ASA

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NORWEGIAN SCHOOL OF ECONOMICS

This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible − through the approval of this thesis − for the theories and methods used, or results and conclusions drawn in this work.

Grieg Seafood ASA
Equity Research

Executive Summary

BUY HOLD SELL

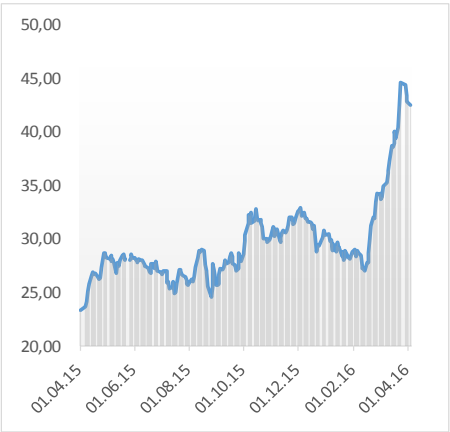
Industry: Aquaculture
Sector: Seafood

Target price: NOK 47,00
Share price (close): NOK 42,60

Key Information

Country	Norway
Risk	Medium
Credit rating	BBB
Ticker	GSF.OL
Shares outstanding (M)	111.662
Market cap (B NOK)	4.254
NIBD (M NOK)	1.926
EV (B NOK)	7.195
Free float	5.935

Historical shareprice Greig Seafood



As seen in the development of the share price, Grieg Seafood has achieved a high return for their shareholders in 2015-16.

Estimated key figures

ROIC before tax 2016E	8.00%
ROE before tax 2016E	10.38%
EBITDA margin 2016E	8.31%
WACC	7.32%

Investment banker`s estimates

Nordea Markets	NOK 57,00
Pareto Sec	NOK 52,00
ABG Sundal	NOK 47,70
FondsFinans	NOK 40,00
DNB Markets	NOK 48,00
Handelsbanken	NOK 60,00
Mean	NOK 50,80

Company result April 29, 2016

Introduction of Grieg Seafood
Grieg seafood is one of the leading Norwegian salmon farming companies, in regards to both harvested volume and production. They also have operations in other regions such as Shetland and BC Canada. The company's total harvested volume in 2015 was 65 400 thousand tons, divided amongst 108 farming licenses. The salmon farming industry is a highly cyclical industry, where the main value driver is the salmon price. Salmon prices are highly affected by changes in supply and demand.

Increased volume and license utilization
Grieg seafood are expected to increase their harvested volume to around 70 000 thousand tons in 2016. This is due to higher utilization of their current licenses, and we also expect to see result from their new "green licenses" acquired in 2014. Prices are expected to remain high in 2016, so increased volume is expected to have a positive effect on Grieg seafood's profitability.

Decreasing supply growth and high demand keeps prices high
In the short-term, growth in salmon supply is expected to be negative in 2016 and increase a little in 2017. This in combination with continuously high demand growth will keep salmon prices at a high level in short – to medium-term.

Increasingly cost efficient
Grieg seafood are implementing specific plans for becoming more cost efficient in the years to come. This, in combination with expected stabilization of fish feed prices, could have a positive effect on their profitability.

Buy recommendation
Our estimated value of Grieg seafood revel that there is potential upside in the share. Our estimated share price is 47, which implies an upside of around 10%. The overall consensus in the market supports our conclusion that Greig Seafood is undervalued (04.04.2016).

Multiples	EV/Sales		EV/EBITA		EV/EBIT		EV/Kilo	
	2015	2016E	2015	2016E	2015	2016E	2015	2016E
Grieg Seafood	1,07	1,13	17,81	9,85	48,34	13,63	76,09	92,40
Avg. Peer group	2,00	1,99	11,41	8,16	15,04	9,69	137,00	160,49

Key figures (NOK 1000)	2014H	2015H	2016E	2017E	2018E	2019E
Sales	2 739 042	4 638 370	5 656 015	6 206 820	6 737 304	7 211 181
EBITDA	491 522	279 327	650 442	775 853	875 850	973 509
NOPAT	298 690	-48 810	350 817	431 308	493 315	554 924
Sales growth	12,95%	69,34%	21,94%	9,74%	8,55%	7,03%
EBITDA growth	- 0,18%	- 43,17%	132,86%	19,28%	12,89%	11,15%
EBITDA margin	17,86%	6,01%	11,50%	12,50%	13,00%	13,50%

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1. Introduction and motivation

This master thesis is a result of five years of studies at several of the best institutions for economic and financial research in Norway. During our studies (Since 2010 until now) we have attended multiple courses and acquired an analytical skillset to assess different sorts of business related problems. Since both of us find valuation an interesting topic and subject within economics we decided to choose this as our master thesis. Moving on to salmon farming on the other hand, was more of a research phase than a search within ourselves. Having some knowledge beforehand, we started an in-depth research process and found the industry to be more interesting than expected. In our early implementation plan we looked at several firms within the industry, also other firms that had other operations within Seafood. This search continued until we finally concluded that the Seafood segment within the traditional Grieg Group was our candidate.

We found the company an interesting candidate considering it has a short history within Seafood and still a long history within other segments such as shipping. Considering our Norwegian inheritance, Grieg Seafood and a promising salmon farming industry struck out as something useful and interesting to learn more about. And the journey so far has been an interesting and insightful one. Learning more about the industry we got a good overall picture of all the risks the companies are dealing with on a daily basis. We decided that this was something we wanted to learn more about, and we were eager to apply the theories we have learned to assess the driving values within Grieg Seafood and the salmon farming industry. And it would not have been the same without the help we had on the way.

That is why we would like to thank Brian Wright and Einar Bakke for providing us with our frameworks for Valuation in their lectures at Norwegian School of Economics. Additionally, we would like to give our thanks to several analysts from different investment banks for their inputs and contributions; Philip Michael Scrase (Fondsfinans), Henning Lund (Pareto Sec), Kolbjørn Giskeødegård (Nordea), Alexander Aukner (DNB) and Markus Bjerke (SEB). Our thanks also includes Norges Sjømatråd: Paul T. Aandahl and Morten Lindrupsen for their dataset on global salmon demand. Also, thanks to Anders Marthinussen and the rest of the analyst team at Kontali for their long and in-depth analysis. We have had a great pleasure of reading your assessments and getting inputs from you during this process. This has contributed a great deal in our independent valuation of Grieg Seafood ASA and

strengthened our analysis of the company and the industry as a whole. Last, but not least we would like to address a special thanks to Tommy Stamland, our supervisor in this process, for great inputs especially in the end-faze of our working process. This has contributed a great deal in our independent valuation of Grieg Seafood ASA.

Bergen, April 2016

Martin Karlsen

Eirik O. Aasen

1.1 Problem statement

Our topic for this master thesis is the salmon farming industry, and our main goal is to conduct a thorough assessment of Grieg Seafood's performance through a fundamental analysis, and by applying other valuation techniques. Basing our insights on previous courses, and knowledge acquired on the salmon farming industry we will be able to give an investor recommendation. With the same structure as an Equity Research Report we will give recommendations of buy - if our analysis indicates that the company is undervalued, hold - if value conserving, or sell - if our analysis indicate that the company is overvalued. This leads us to the following problem statement:

"What is the fundamental value of Grieg Seafood's equity, and what is a fair price for their current trading stock, compared to the market capitalization on Oslo stock exchange."

To answer this problem statement, we will perform an in-depth fundamental analysis. We will assess GSF separately, but also look closer into salmon farming industry and other crucial market conditions. The current stock of GSF is trading at a share price of 42,60 when OSE closed April 4th 2016 (see Executive Summary).

1.1.1 Underlying questions (Sub questions)

As shown in our upcoming figure of the thesis structure in chapter 1.1.3, the thesis will be divided into different sections. And each section will provide several underlying question that we will answer consecutively through different analysis. Our findings will continually be answered throughout the thesis, and will be summarized in our final conclusion. Below is a preparatory overview of the coming sections and their underlying questions. Our suggestion is that the reader takes a good look at these questions since they are essential when moving on in our thesis.

GSF and the salmon farming industry

Understanding the company in question, and the industry it operates within is crucial when performing a good valuation. This section, and the insight found here is the steppingstone and foundation in the forthcoming financial and strategic analysis. The following sub questions will be answered in the section:

- Who are GSF, what are their history and how are their outlook for the future?
- What characterize the industry and how has it developed over time?
- What does the value chain look like and why is this important?
- Why are licenses so important, and how will the distribution of these licenses develop in the future?

Historical financial analysis

In the financial analysis our main intention is to look at the historical performance of GSF and peers. Different analysis will be used in order to measure key value drivers in the industry.

- What is the historical performance and profitability of the firm?
- How is the firm's liquidity, and what are the risks when it comes to liquidity?

Strategic analysis

In the strategic analysis it is important to assess internal factors as well as external factors. We have used several known frameworks within the field of strategy to get a best possible grasp of the strategic position of Grieg Seafood and the industry.

- Does Grieg Seafood have any competitive advantage and internal strengths?
- How is the competitive environment and how can GSF compete in a best way possible?

- What are the macro factors that has affected and can affect the salmon farming industry?

Forecasting

It is very important to have a solid and realistic forecast when moving on to the valuation process. First, we will assess different value drivers, were operating income will be the most important factor. Our findings from the financial and strategic analysis will play a important role when making a pro forma income statement and balance sheet.

- What will the future salmon price be?
- What are the effects of the salmon price, global supply and global demand?
- How much harvested volume will GSF be able to produce?
- What is the most accurate way of forecasting future costs, and line items in the balance sheet?

Valuation

We will derive the enterprise value and equity value by using the results from our pro forma income statement and balance sheet. Then we will use different valuation frameworks to get an accurate valuation of the current stock. More specifically we will begin with a present value approach before we look at a relative valuation using multiples. We will also use sensitivity and scenario analysis to find a base, best and worst case.

- Why is the APV approach more suitable than a normal DCF?
- Which industry specific multiples are best suited for valuation purposes?
- How sensitive is GSF value to changes in important valuation inputs such as long term growth in terminal value, WACC, risk free rate and betas?
- What is the best and worst case scenarios from GSF using different strategies, such as product innovation and cost-efficiency, and from changes in fundamental inputs?

1.2 Methodology and structure

This chapter will address how we have proceeded in our collection of data, theories and contain a short description of how we have structured the thesis. The purpose is to give the reader a better understanding of our way of thinking and insight in the methods we have applied in the thesis.

1.2.1 Data collection

The thesis consists of financial analysis and strategic analysis, which means that data used are both quantitate and qualitative in nature. Most of our data is found through annual reports, quarterly reports, industry reports and general news articles. This is public information, which we find important since we will use the perspective of an individual investor/ analyst. In addition, we have also reached out to other sources with firm specific and industry specific knowledge to get more insight for our data analysis. All data used in the thesis can be found in the reference list at the end of our analysis, and will be referred to in the text.

1.2.2 Theories in the thesis

We have used a wide scope of different theories in our analysis throughout this thesis, looking at as many different theories as possible by using knowledge from courses attended during our studies and other additional sources. Using several sources can increase the quality of the analysis by having different viewpoint on how to solve problems. Each section starts by introducing what potential theories have been used. It is often referred to the relevant page, and we highlight what we find essential or important to understand how we continue our assessments and analysis.

1.2.3 Structure of the thesis

The thesis is structured in multiple sections that lead to our final conclusion and valuation of GSF. Below in figure 1.1 you will find an overview of the structure we have followed in our

thesis. This is in order to give the reader a better overview of the thesis and how we have constructed the assignment.

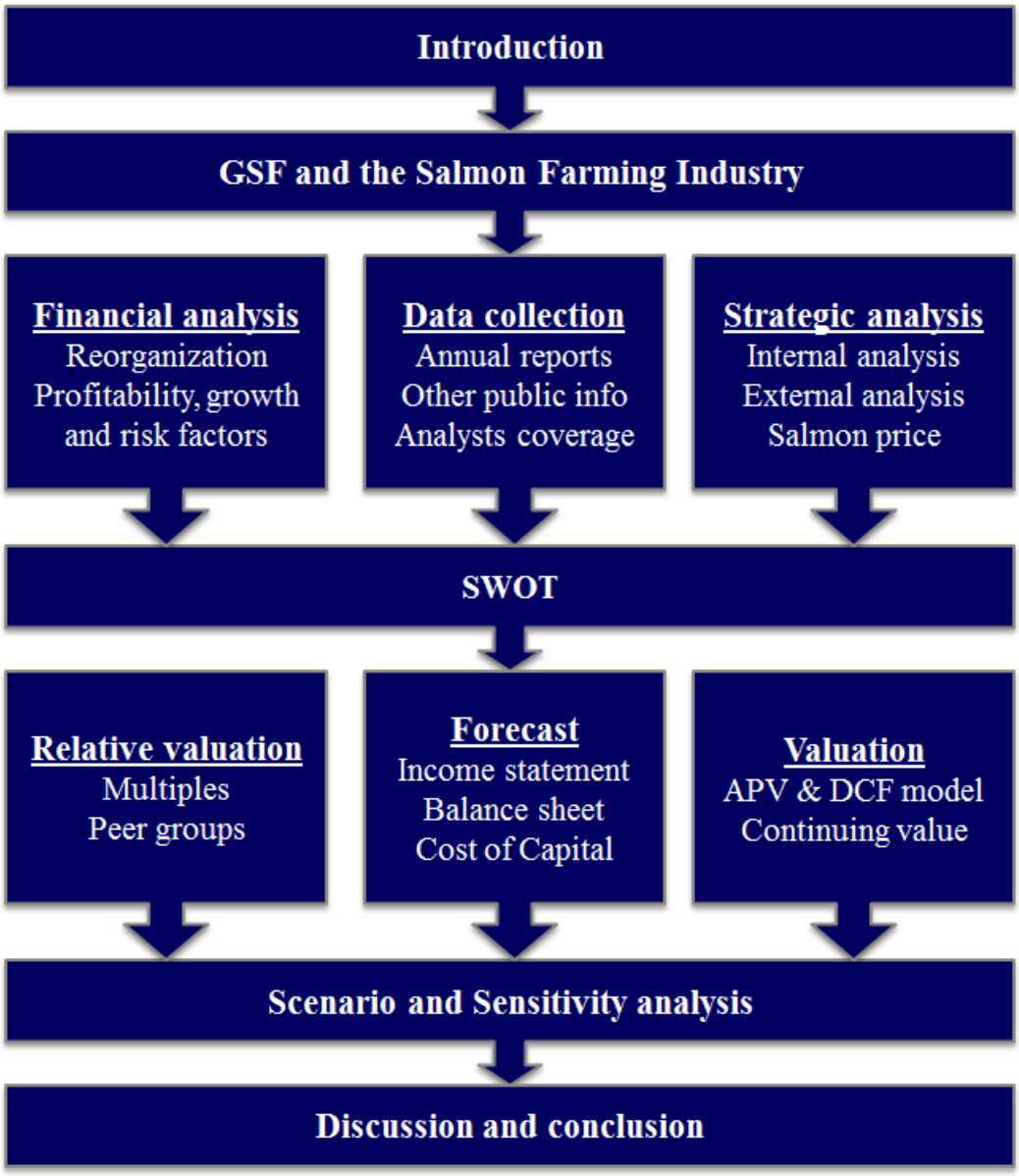


Figure 1. 1 Structure of thesis. Source: Own creation.

1.3 Delimitations and disclaimers

Due to certain constraints such as limited time, available data material and size of the paper, several limitations have been made during the process. This will also make sure we focus on solving the main problem and answering the underlying questions at hand.

- First of all, we expect that the reader has general knowledge of finance and economics and some knowledge of strategic thinking. This, so we do not have to explain every model in detail when writing our thesis.

- Our cut-off date for gathering *new* information will be around *29th of April* since this is when Grieg Seafood publishes their last annual report for 2016. Any other information dated after this date will not be considered as relevant for our valuation and this thesis. The valuation point for the fundamental valuation will be *4th of April*.

- As mentioned, we consider this thesis as a report written for investors from an analysts point-of-view. And for that reasons we have also based all our information on public available information such as annual reports, quarterly reports, articles etc.

- When we refer to short term (ST) we are referring to a two-year horizon (2016-2017). When referring to the middle term (MT) we are referring to four-year horizon (2018-2021). When referring to the long term (LT) we are considering up to six years ahead from 2022 and on.

- Due to GSF consolidation with Ocean Quality from 2015, we will not focus to much on the financial analysis from this year. The new consolidated accounting method leads to difficulties in regards to comparing financial results to previous years.

- We will not forecast potential merger and acquisitions (M&A).

2. GSF and the Salmon Farming Industry

The main purpose with this section is to introduce the reader to Grieg Seafood and the salmon farming industry. We will look at the company's current and historical situation and how the industry as a whole has developed in later years. Considering our main task, we will aim to describe the key drivers for return on invested capital (ROIC) and revenue growth within the industry and for Grieg Seafood.

2.1 Grieg Seafood ASA

Grieg Seafood ASA (GSF) is one of the leading salmon farming companies in Norway and was listed on Oslo Stock Exchange (OSE) in June 2007. The Seafood segment is an underlying part of the Grieg Group, which also has operations within Shipping. After several mergers and acquisitions in 2007, Grieg Seafood ASA decided to go public and expand the Seafood segment beyond Norwegian boarders and into European markets. Today, GSF owns several licenses and fish farms in Norway (Rogaland and Finnmark), Canada (British Columbia) and in UK (the Shetland Islands). In total, the Group has 100 licenses for salmon farming and four licenses for smolt production (Grieg, 2015, page 11). Grieg Seafood was by the end of 2014 the seventh biggest fish farming company in Norway measured in harvested volume, the fourth biggest in the United Kingdom and the fifth biggest in North-America (Marine Harvest, 2015, page 27).

Grieg Seafood have a market capitalization of 4,756 billion NOK (04.04.2015) and supplies their customers through the partly owned company Ocean Quality. The company was established in the fall of 2010 and GSF owns 60 percent while Bremnes Fryseri AS owns the remaining 40 percent. Grieg Seafood ASA has capacity of around 90 000 tons gutted weight (GW) annually. The group had a turnover of 4 608 MNOK in 2015, an increase of 72,91% (Mainly because of consolidation with Ocean Quality). The Grieg family is the largest shareholder, controlling 55 percent, mainly through Grieg Holdings AS. Marine Harvest ASA is the second largest shareholder controlling more than a quarter of the company (25,8 %).

2.2 The salmon farming industry

Our main intention for writing this part is to introduce the reader to the industry that Grieg Seafood are operating within and what drives the profitability in the salmon farming industry. Salmon farming was initially an experiment that stated in the 1960s, and became an industry in Norway in the 1980s (Marine Harvest, 2015).

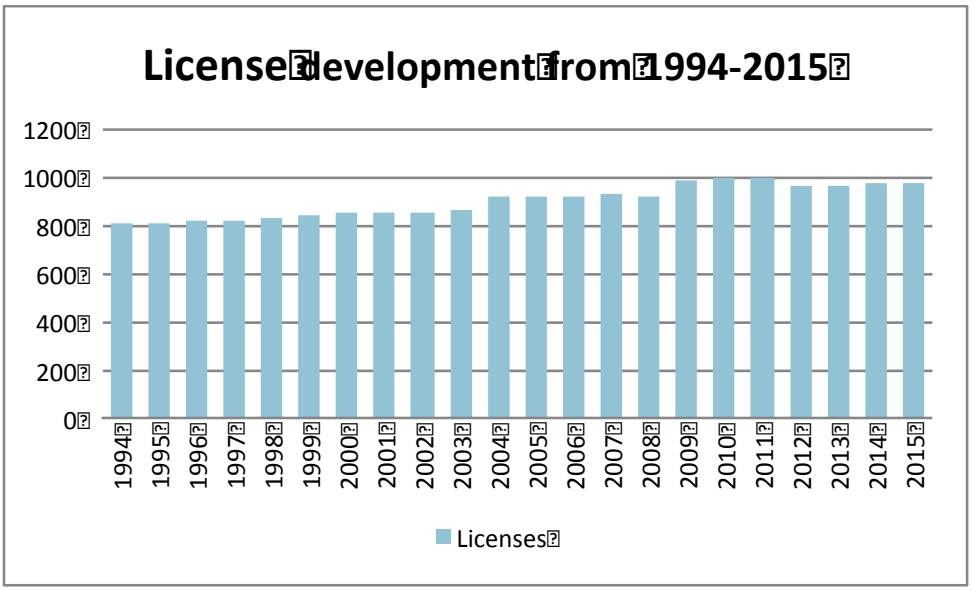
2.2.1 Market constraints

Due to biological constraints such as the risk of diseases, seawater temperature requirements and other natural constraints, farmed salmon is only produced in Norway, Chile, UK, North America, the Faroe Islands, Ireland and Tasmania (Marine Harvest, 2015a, p.19). There are certain time constraints and evaluations that have to be taken into account as well: Fish in the sea often varies from different generations and develops in different pastes, highly dependent on season. Also, it is required that the harvested sites get 2-6 months restitution before the new generation is put into the same location - so this is a big logistical process that all companies have to take into consideration.

2.2.2 MAB and Licenses

When it comes to salmon farming, companies need farming licenses in order to operate their farming sites. It was 973 licenses in Norway in 2014, for Atlantic salmon and trout in seawater. Each company is allowed to employ 780 tons of biomass per license in Norway. So the maximum allowed biomass (hereafter MAB) is 780 tons, with exceptions of Finnmark and Troms where it is allowed a MAB of 945 tons. The reason for the differences depends on productivity, fish health, sea temperature and other conditions. Finnmark and Troms tends to have lower sea temperatures than the rest of the country (Marine Harvest, 2015a, p. 56-58). Such licenses restrict growth, and companies are forced to focus mainly on license utilization.

The tablet below illustrates the license distribution in Norway from 1994-2015. The licenses that have been practiced by the Norwegian Directorate of Fisheries since 1973 have dropped rapidly in numbers after 1982. This becomes quite clear looking at the latest development as well. New licenses are distributed among the companies only in certain years, last time in 2013 where 45 new green licenses were distributed – Grieg Seafood received four licenses.



Graph 2. 1 Licence development in Norway. Source: Own creation/ Fiskeridirektoratet

However, there are great differences in the distribution of licenses when we compare Norway, UK and Canada. Grieg Seafood has 100 licenses for salmon production and 5 licenses for smolt production (Grieg, 2015, page 11). When referring to the licenses for salmon production it is referred to 52 licenses in Norway, 21 licenses in BC and 39 licenses in UK.

Salmon farming in British Columbia is not only relying on one license, but two licenses: both a Provincial license and Federal License. When looking at license distribution in Scotland on the other hand, you will need to get permission from three institutions to be able to practice salmon farming. There are also great differences in MAB: In Scotland for example, licenses can vary from 100 tons to 2.500 tons (Marine Harvest, 2015a, p. 60).

Licenses are a necessary prerequisite that all authorities have in place in all the salmon farming countries. This is a very important notion since it means that the licenses do not only limit the total production for each company, but also the total production of the whole industry. We will come back to this later in our strategic analysis, since these licenses represent a big barrier to entry that can be a competitive advantage.

2.3 Production of salmon and key risk factors

Salmon is the most common name for several species of fish in the family Salmonidae, both Atlantic salmon and Pacific salmon. The salmon farming process begins with hatchery, or artificial breeding of eggs, that eventually becomes juvenile fish (from now on called smolt). The operation is carried out in freshwater on shore in a period of 12-16 months. This process is much more controllable due to adjustable fresh water supply and reliable environments for the smolts to grow. Moving on, the smolt are moved into seawater and placed in net pens where they will remain the rest of the farming process, 14-24 months (Marine Harvest, 2015a, p.30).

One of the most essential part of the farming process is the feeding process. Due to falling cost curve and the discounted price of small fish, the economic optimal harvest weight is in the area of 4-5 kg (GWE) (Marine Harvest, 2015a, page 68). After the salmon is developed, it is transported in well-boats to primary processing (slaughtering and gutting), and some goes on to secondary processing (called value added products - VAP), which include filleting, ready-to-eat meals etc. It is very important that the level of stress is minimized to obtain the quality of the fish before it is killed. This, since customers are willing to pay for quality and VAP (Marine Harvest, 2015a, page 71). The fish is usually killed with electrical shocks.

The optimal temperature for breeding salmon is somewhere in between 8-14°C. This is why there are few places in the world suited for salmon production. After receiving a license, the company must find a suitable location to establish the right farming environment. And this needs to happen within two years, with at least one third of the maximum allowed biomass requirement (Marine Harvest, 2015a, p.29-32).

Salmon farming is a commodity-based industry that has experienced rapid growth the previous years. However, considering it is still a young industry in an early development stage, looking at an R&D point of view, there are several risk factors that have to be considered. We can divide these risk factors into operational risks and market risks. The industry is subject to considerable uncertainty associated with biological production, changes in salmon prices, political trade barriers, as well as financial risks such as changes in interest and currency exchange rates (Grieg, 2014, page 4).

Environment is a big consideration that all salmon farming companies have to be aware of. Not only the climate and what effects it will have on the current stocks, but also the effect that the current stock can have on the environment if not dealt with in a proper way. The main concern for all companies in the industry is the risk of salmon diseases outbreaks.

2.4 Cost structure

As in all animal production, feed makes up the largest share of the total cost (Marine Harvest, 2015, page 39). This is no exception when it comes to salmon farming. Illustrated in the table below, we can see an overview of the key cost drivers in the salmon farming production process.

Reference cost	Norway		Canada		Scotland	
	NOK	%	CAD	%	GBP	%
Feed	12,35	48,07%	2,26	39,44%	1,62	49,24%
Primary processing	2,62	10,20%	0,55	9,60%	0,31	9,42%
Smolt	2,28	8,88%	0,54	9,42%	0,31	9,42%
Salary	1,49	5,80%	0,56	9,77%	0,18	5,47%
Maintenance	0,89	3,46%	0,22	3,84%	0,09	2,74%
Well boat	0,98	3,81%	0,21	3,66%	0,21	6,38%
Depreciation	0,76	2,96%	0,2	3,49%	0,13	3,95%
Sales & Marketing	0,62	2,41%	0,02	0,35%	0,04	1,22%
Mortality	0,34	1,32%	0,04	0,70%	0,15	4,56%
Other	3,34	13,00%	1,14	19,90%	0,25	7,60%
Total*	**25,69**	**100%**	**5,73**	**100%**	**3,29**	**100,00%**

Table 2. 1 Cost structure salmon industry. Source: Own creation/Marine Harvest 2015

As mentioned earlier, feed is the main cost that almost stands for half of the costs in Norway and in Scotland. Another finding that is worth mentioning is that the cost related to salary in percentage of total costs is higher in Canada. Other costs include administration, insurance, biological costs, are also much higher in Canada than in Norway and Scotland.

2.5 The value chain

The total production cycle of farming salmon is complex and long lasting. The total cycle length is approximately 24-40 months: 10-16 months' freshwater production and 14-24 months' seawater production (Marine Harvest, 2015, p. 31). The companies need knowledge and skills within biology, shipping, processing and sales. When looking at the industry, it is

clear that there are big differences considering how much of the value chain each company control: ranging between having control of the entire value chain (see for example Bakkafrost P/F) to just focus on breeding and sales of salmon.

In the figure below, we see a general salmon farming value chain's first four steps. The first period in freshwater consists of supervision of spawn production (step one), and supervision of brood and smolt production (step two). Moving forward to seawater production, step three is typically the transfer of the developed fish from onshore operations into the sea. Followed by the critical and final growth phase in sea (step four).

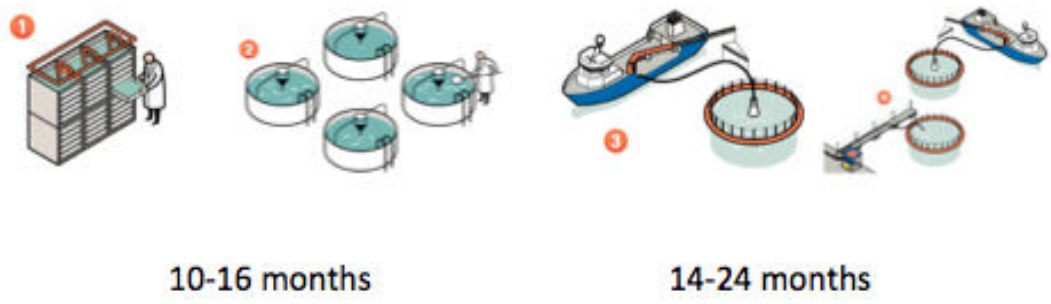
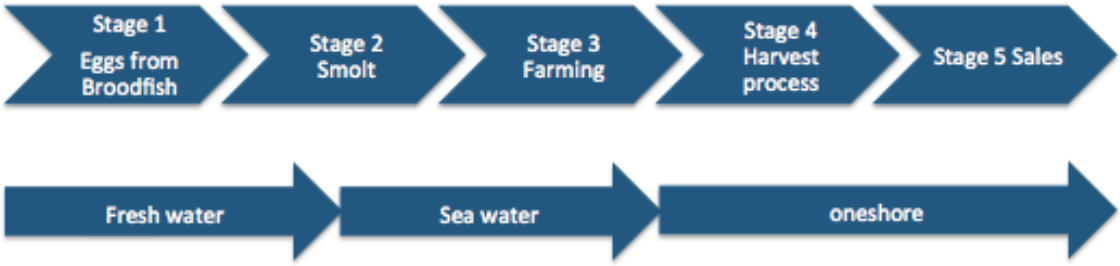


Figure 2. 1 Salmon farming process. Source: Marine Harvest 2015a

In recent years, most salmon farming companies have realized that there is great potential and advantage in managing most of their value chains themselves versus outsourcing to others. One reason for this, as mentioned earlier, is the great complexity of the salmon farming process, and the demand for knowledge within different fields. Integrating all the necessary knowledge within one organization seems to give certain synergy effects. The biggest players, like Marine Harvest, have begun this horizontal acquisitions process to fully utilize the salmon farming process.

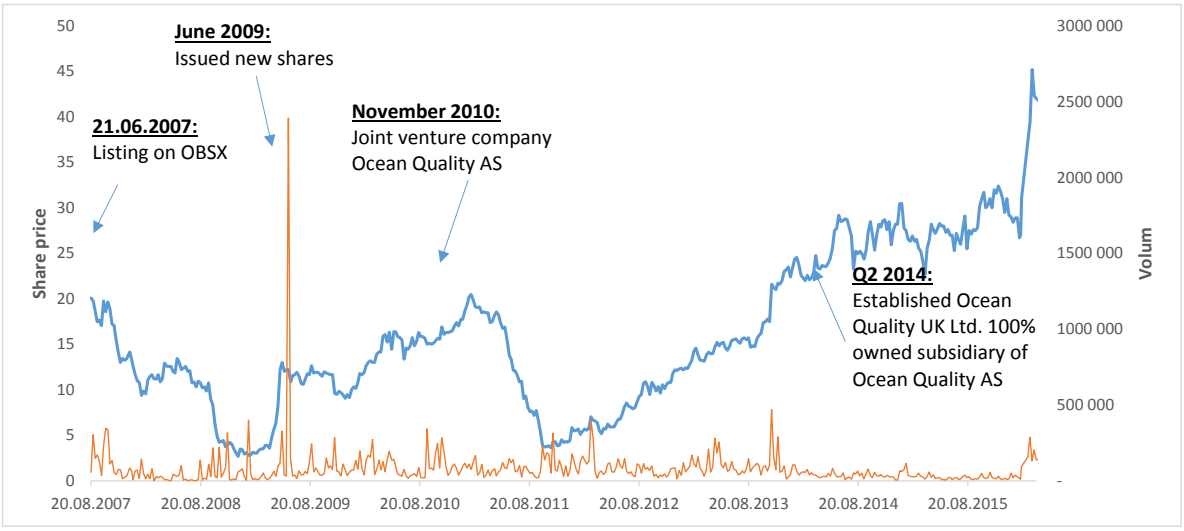
Grieg Seafood is almost in control of their whole value chain, but we have to exclude feed that is delivered from external suppliers. Another exception is their harvest processing in British Columbia that also is entirely distributed to external parties. That being said, GSF uses external suppliers in addition to their own supplement in their smolt production (all regions), in their harvesting process (in Norway and UK as well), and in their egg supply from Broodfish process in Canada (not in Norway and UK). Their entire farming process

and sales process (Ocean Quality) is self-supplied. See appendix 2.1 for a value chain overview.



Figur 2. 2 GSF value chain. Source:

2.6 Share price development and historical events



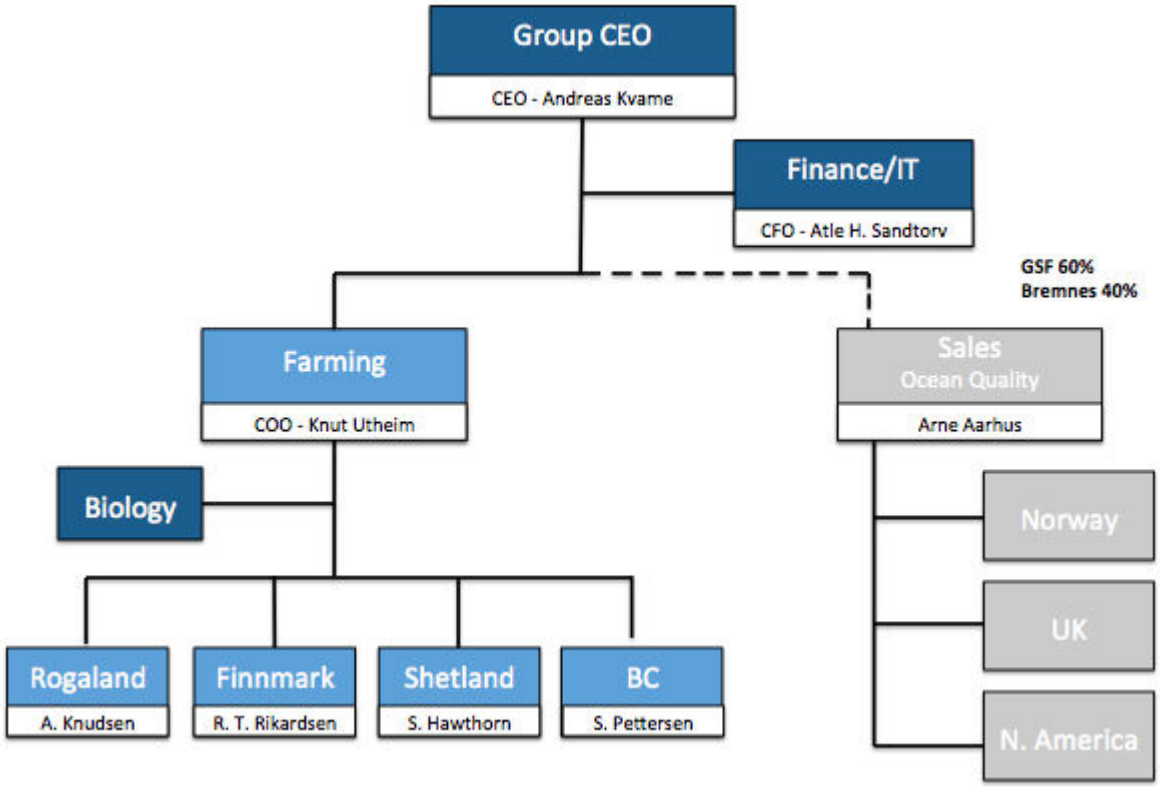
Graph 2. 2 Share price development and historical events GSF. Source: Own creation, ARs GSF and Yahoo Finance.

GSF made many acquisitions before the listing on Oslo stock exchange in June 2007. They acquired Target Marine Products Ltd in BC in January of 2007, Hjaltland Seafarms in Shetland in April of 2007, Watt & Goodlad Ltd, North Atlantic Sea Farms Ltd and Havfisk Ltd in June 2007 (Grieg, 2008, p. 4). The listing in June 2007 was a strategic necessity in the pursuit of being one of the leading seafood companies in the world (Grieg, 2007, p. 4). The salmon farming industry is a capital intensive industry, which makes access to capital

important (Grieg, 2008, p. 4). Before the IPO, they had a strategy of growing through acquisitions. A full list of historical events can be found in appendix 2.2.

As we can see from graph 2.2, GSF share price has been very volatile since the IPO in 2007. The share price of companies in this industry is very dependent on salmon prices, as we will analyze in more detail later in this thesis. The big downturn in 2011 is mainly because of low salmon prices and a decreasing production volume. The market took a big turn in 2012-2016 as a result of increased salmon prices. GSF share price peaked 21th of April 2016 with a price of 45,2. Today (04.04.2016, valuation point) the share is traded at 42, which gives a compounded annual return of only 6,6%[1].

2.7 Corporate structure



Figur 2. 3 Corporate structure GSF. Source: Own creation / (Greig, 2015b , p.7)

[1] Compounded annual= (Ending value (42)/Opening value (23,5))^(1/numbers of years (9)))-1

GSF divide their operations into two segments: Farming/production and sales (through Ocean Quality). Their farming operations is divided into four regional segments: Rogaland, Finmark, BC and Shetland.

Company	Licenses	2012	2013	2014	2015
Grieg seafood Rogaland AS	20	19 247	15 088	12 778	15 236
Grieg seafood Finnmark AS	28	20 080	23 076	26 470	19 481
Grieg seafood Hjaltland UK LTD.	39	17 097	13 158	19 231	16 370
Grieg seafood BC LTD.	21	13 576	6 739	6 257	14 311
Total	108	70 000	58 061	64 736	65 398

Table 2. 2 Regional harvested volume. Source: Own creation/ Grieg annual report 2014 and 2015.

GSF has four regional farming companies within their corporate structure: Grieg seafood Rogaland AS (Norway), Grieg seafood Finnmark AS (Norway), Grieg seafood Hjaltland UK Ltd (UK/Shetland) and Grieg seafood BC Ltd (North-America/ Canada).

Rogaland

GSF is represented in western Norway through Grieg seafood Rogaland AS. They have 20 grow out licenses in this region, are present in six different counties and employ 102 people (Greig, 2016b, p. 5). GSF Rogaland was in 2015 their second smallest production region in term of harvested volume, and the second most profitable with an EBIT/kg GWE of 5,5 (Grieg, 2016b, p.5).

Finnmark

In northern Norway, GSF is represented through Grieg seafood Finnmark AS. At the moment they have 27 farming licenses, where 4 of these are new "green licenses" allocated to them in 2014 (Grieg, 2016b, p. 7). These new green licenses aren't fully utilized at the moment, but are expected to be during 2016. GSF Finnmark AS employ 162 people, and was GSFs biggest farming region in terms of harvested volume in 2015. Also, GSF Finnmark AS was the most profitable with an EBIT/kg GWE of 6,4 in 2015 (Greig, 2016b, p. 7).

Shetland

GSF is represented in the UK through Grieg seafood Hjaltland UK Ltd. This is GSFs biggest production region in terms of number of licenses, but because of different political restraints (as mentioned above) and biological challenges, it's not GSF biggest in terms of harvested volume (Grieg, 2016b, p. 6). GSF Hjeltland Ltd is Shetlands biggest salmon producer, and

employ 166 people. The company has activities within the entire value chain, from hatcheries to processing. In 2015, GSF Hjaltland Ltd was GSFs least profitable region with a EBIT/kg GWE of -10,1.

BC

In BC, GSF is represented through Grieg seafood BC Ltd. In 2015 it had 22 licenses, and was the smallest production region in terms of harvested volume (Grieg, 2016b, p. 8). All the farms are based around the Vancouver Islands, and in the later years the Canadian farms have developed a premium salmon offering called Skuna Bay Salmon (Grieg, 2015, p. 8). The company's proximity to the U.S, Canadian and Asian markets is ideal in terms of transportation costs. At the same time GSF BC Ltd was GSF second least profitable region in 2015, with a EBIT/kg GWE of 0,9. In 2015 the production of pacific salmon where much lower, and harvested volume was expected to grow considerably (Greig, 2015, p. 12). These expectations were meet, with harvested volume more than doubling from 2014 to 2015.

Ocean Quality AS

As of 2015, all sales are handled through Ocean Quality AS. This is a Norwegian sales company which is owned by Grieg seafood ASA (60%) and Bremnes Fryseri AS (40%). The company were founded in 2010, and have their main office in Bergen, Norway. In 2014 Ocean Quality UK Ltd was established, and handles all sales from Grieg seafood Hjaltland Ltd. In the same year Ocean Quality also established a company in Canada, and as off 2015 this company handles all sales from Grieg seafood BC Ltd (Grieg, 2016b, p. 9).

GSF is a global company which sells its products to different markets all over the world. Close proximity to customers is therefore a key factor for exceeding in this industry. This is also the main reason behind the decision to open sales offices in production areas. GSF geographical markets 2015:

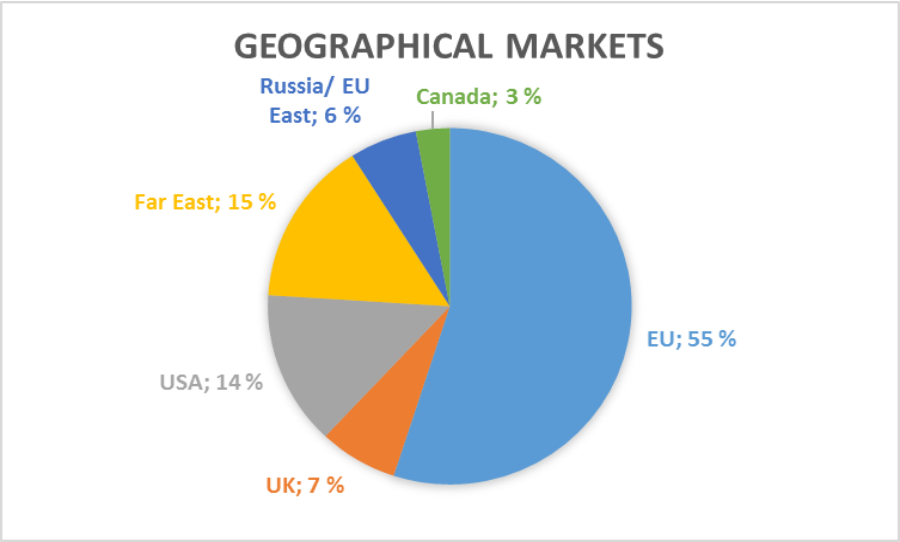


Figure 2. 4 GSF Geographical markets. Source: GSF annual report 2015.

As we can see from figure 2.4, GSF sell most of their products in the European and British market. Most of the produced volume in Norway is sold in Europe, and most of the volume produced in Shetland is sold in the UK. This is a natural development based on the production location.

2.8 Ownership

Grieg Holding AS is the largest shareholder in GSF with 49.97%% ownership. Marine Harvest is the second biggest shareholder with 25,75% of the company - combining 19,84% invested through DNB and 5,92% invested through Nordea. A total overview of the largest shareholders in GSF can be found in appendix 2.3.

2.9 Group management

When evaluating a company and the development of its stock, the management of the group becomes an important component. They are responsible for the company's strategy and ultimately responsible for the company's overall performance, at least considering parameters within their control.

CEO (Chief Executive Officer) – Andreas Kvame

Andreas Kvame started as CFO 1th June 2015. Before this he was CFO for the company Scanbio, where he left after two years. Previous to this he worked for Marine Harvest for 17

years, where he participated in the top management for several years. Some of his responsibilities where within sales, logistics and integration. He also has experience from change management and integration of several international capacity companies (Grieg, 2016b).

CFO (Chief Financial Officer)– Atle Harald Sandtorn

Atle Sandtorn came from the position as CFO in the subsea company Bennex. He also has 13 years working experience from the transport company Tide ASA. He played a central part of the management team that lead Tide ASA during a time of strong growth and structural change. Tide ASA is today one of Norway's leading transport companies (Grieg, 2016b).

CAO (Chief Accountant Officer)– Trude Østvedt

Employed by GSF in 2007 when the company was listed on the Oslo Stock Exchange. Is a certified accountant from NHH (Norwegian School of economics), and has working experience from big accountant firms such as PWC and Ernst & Young. Has been employed in Grieg Group Resources AS since 1993, where her main areas of experience were finance, accounting, marketing, communication and human resources (Grieg, 2016b).

COO Farming (Chief Operating Officer Farming) – Knut Utheim

This is a newly established position in GSF, where Knut has had the position since April 2014. He has years of experience from the salmon farming industry, and has previously worked for Stolt Sea farm (1990-2005) and Marine Harvest (2005-2014). In Marine Harvest he was regional director in Central-Norway (Grieg, 2016b).

Director of biological Performance and Planning – Frode Mathisen

Has had this position from July 2010, and prior to this he was the groups freshwater manager. He has also held various positions within GSF, Marine Harvest and Stolt Seafarm. Has a master degree in aquaculture from the University in Bergen.

Director of Feed and Nutrition – Tor Eirik Homme

This position was newly established in 2010, and Homme has had the position since then. Before working in Grieg Seafood, ha was Marketing and Development Manager in EWOS Norway. He has 16 years' experience in the fish feed industry, and has thorough knowledge of the development phases of fish feed and the nutritional requirements for salmon. Sales, marketing, product development, project management, international coordination and research is some of his working experience (Grieg, 2016b).

2.10 Peer group introduction

In order to benchmark GSF historical performance, it is important to use peer groups to get a better overall picture of GSF relative performance. When choosing peer groups, it is important that the companies are comparable along some dimensions such as business characteristics and operations (size, regional presence, maturity, structure etc.). After considering many salmon farming companies on the Oslo Stock Exchange, we decided to go for Marine Harvest and SalMAr. Here there are also deviations which are important to keep in mind. GSF and MHG are more globally diversified than SALM, and MHG are more focused on VAP than GSF and SALM.

Marine Harvest (MHG)

MHG is one of the leading and largest salmon farming companies in the world, and the world's largest producer of farmed Atlantic salmon. It employs 11 700 people worldwide, and are represented in 24 different countries. Most of their production is still in Norway, but large part is also from Chile, Scotland, Ireland and Canada. They produce large volume of redy-to.eat meals, as well as frozen salmon, and their products reaches 70 different markets worldwide. Their annual harvested volume in 2015 was over 420 000 tonnes, and their managed a turnover of over 28 billion NOK. MHG is both listed on the Oslo Stock Exchange (OSE) and the New York Stock Exchange (NYSE) (Marine Harvest, 2016).

SalMAr (SALM)

SALM is also one of the largest producers of Atlantic salmon, and by many considered the most cost efficient and over all efficient producers in the world. The only farm salmon in Norway, and have 68 licenses in their main production region in Mid-Norway (Trøndelag and Nordmøre), and 32 licenses in Northern-Norway through their fully own subsidiary SalMar Nord AS. They also own 50% of Nordskott Havbruk AS, which owns 100% of Scottish Sea Farms Ltd, the second largest salmon farming company in Great Britain. In 2015, SALM had a turnover of over 7,3 billion NOK, and total harvested volume of in Norway (not including Scottish Sea Farms Ltd) og 136 400 tonnes. SALM was listed on Oslo Stock Exchange in 2007.

3. Historical financial analysis

In this section we seek to get an overview of GSF's historical financial performance, by which we mean the company's historical ability to create value. The focus will be on profitability and development in both revenue and costs. These performance measures along with the strategic analyse will play an important role when forecasting for valuation purposes later in the thesis. When making a financial analysis it's important to focus on key areas of value creation, and comparing these with GFS's biggest competitors.

Before we go any further, it's important to note that the absolute numbers in the income statement and balance sheet will differ a lot from 2014 to 2015 because Ocean Quality will from 2015 be dealt with as a subsidiary for accounting purposes and therefore fully consolidated (Grieg, 2016a, p. 3). This means that all effects of the equity method must be eliminated when consolidating net income. For this reason, we will not focus to much on the financial analysis from 2015 for GSF.

3.1 Reorganizing income statement and balance sheet

To get a good measure of value creation we need to find the key driver of value in GSF, which is its core operation. For these purposes we need to reorganise the income statement and balance sheet to reflect a robust assessment of operating performance and value (Koller et al. 2010, p. 133). In this analyse we will focus mainly on ROIC (return on invested capital), and for that reason we need to find earnings generated from operations, and invested capital. More specifically we need to separate items from operating, non-operating, and sources of financing (Koller et al. 2010, p. 133).

3.1.1 Income statement

Following line items has been removed from operating result:

Net financial items

Net financial items are per definition not part of operations. Most of the financial income are currency gains, and most of the financial costs are interest expenses on bank borrowings and leases (Grieg, 2016b, p. 84). Interest expenses are considered payment to the company's financial investors, therefor not operating expenses (Koller et al. 2010, p. 136).

Impairments/reversals

GSF frequently perform impairment and reversal test to see if the value of intangible assets is realistic or not. Impairment test on licenses are only performed if there are indications of loss in value. These kinds of impairments/reversals are not frequent in nature, and are therefore difficult to predict in the future. For this reason, we have excluded from the core operation.

Fair value adjustment of biological assets

Companies using IFRS are regulated by IAS 41 Agriculture for accounting treatment of live fish (Grieg, 2016b, p. 56). The basic principle is that live fish shall be measured at fair value. Since there is no market price for live fish, the company has to establish an estimated fair value (Marine Harvest, 2015, p. 36). The estimate is based on forward prices/or the most relevant information available for the period when the fish are expected to be harvested. The price is also adjusted proportionally according to how far in the growth cycle the fish are (Grieg, 2016b, p. 56).

Line items that have been kept in operating result, but are worth mentioning:

Other revenue

Other revenue mainly consists of gains and losses on sale of tangible assets (Grieg, 2015a, p. 63). Most of GSF tangible assets are part of operations, and the amounts are insignificant when looking at the big picture. We have therefore chosen to keep other income as part of the operating result.

Income from associated companies

Income from associated companies and joint ventures are income from companies in close relation to GSF's operations and value chain (Grieg, 2016b, p. 52). These revenues are also insignificant, but we have kept them in the operating result because they are related to operations.

3.1.2 Balance sheet

As mentioned above we need to reorganize the balance sheet in order to calculate invested capital. We use the same principle as for the reorganization of the income statement, separating assets that are related to operations and those that are not. The same has to been done for liabilities. When reorganizing we use total current assets as operating assets, and

total non-interest bearing debt as operating liabilities. Interest-bearing liabilities should not be included as operating liabilities because they are non-operating (Koller et al. 2010, p. 142). Net operating working capital is found by taking total current assets minus non-interest bearing debt excl. deferred tax. Invested capital is found by the sum of total current assets and total non-current assets minus total non-interest bearing debt including deferred tax.

Some line items worth mentioning:

Biological assets

Biological assets are fish in the sea, adjusted to fair value (Grieg, 2016b, p. 52). Can in a way be seen as inventory, and part of operating. Has therefore been classified as a current asset.

Other current receivables

Other current receivables mainly consist of VAT receivables and pre-paid expenses (Grieg, 2016b, p. 82). Some years they also consist of insurance claims, and a line item called other current receivables which is unclear what consist of. Because they are rather insignificant in size, we have decided to include them in current assets.

Other current payables

Other current payables/liabilities mainly consist of accrued operating expenses and other short term liabilities. In 2014 other current liabilities also consist of a line item called other non-current liabilities. Included in this line item is the purchase of "green licenses" finally granted in 2014 (Griega, 2015, p. 92).

Cash and cash equivalents

Excess cash should not be included as invested capital since it is per definition not necessary for core operations (Koller et al. 2010, p. 145). It is not common practice for companies to distinguish between operating cash and excess cash in their balance sheet or in the notes in annual reports. We have therefore decided to include cash and cash equivalents as a security rather than a current asset in the reorganized balance sheet.

3.1.3 Dealing with operating leases

Operating leases are not shown in the balance sheet as an asset or as debt. In these cases, operating leases is a source of off-balance sheet financing (Damodaran, 1999). The primary difference between financial and operating leases is that financial leases generally lasts for

the entire life of the asset, and operating leases are usually signed for a period much shorter than the actual life of the asset. Financial leases are found in the balance sheet as an asset and liability, and operating leases are treated as an operating expense in the income statement. For this reason, operating leases are often preferred since this hides the potential liability, and therefore also understating the financial leverage (Damodaran, 1999).

For valuation purposes, lease agreements can be viewed as an alternative to borrowing and buying an asset. This all depends on whether the lease payment represents a commitment similar to interest payments on debt (Damodaran, 1999). In our reformulation of the income statement, balance sheet and valuation, we have decided to capitalize all operating leases.

There are different ways of doing this, and we have decided to find the present value of future lease commitments (Damodaran, 1999). Some problems can arise due to compounded commitments reported in the annual reports, which do create discounting problems. In some years GSF have actually reported the present value of future minimal leases, and in the years where this is the case we have used the reported numbers. The usual approach is to report minimal lease commitments due in one year, between one and five years, and after 5 years. In cases where GSF dos not report the present value them self's, a good approximation is to work out the average lease commitments between one and five years as an approximate annuity in converting the final cumulated amounts (Damodaran, 1999). When discounting back to find the present value, GSF has used a discount rate of 5%.

Adjustments made due to operating leases

Operating leases are normally treated as an operating expense, and kept out of the balance sheet. When capitalizing operating leases some adjustments has to be made to the income statement and balance sheet. First of all, we find net operating leases payed each year by dividing present value by the estimated length of operating leases. We then adjusted other operating expenses by this same amount each year. When capitalizing operating leases, they are entered as a liability. The liability becomes interest-bearing debt, and interest expenses are calculated using the discount rate. Capitalized operating leases are now treated as a non-current asset, and is therefore subject to depreciation. Depreciation is in this case found by the difference in net operating leases and interest expenses.

In the balance sheet the capitalized operating leases are classified as a non-current asset, and as interest-bearing long term debt.

We have also capitalized operating leases for GSF most relevant peers using the same method for consistency and similarity.

All reformulated income statements and balance sheets for GSF and peers can be found in appendix 3.1.

3.2 Historical performance and profitability

We begin this exercise by looking at historical performance and profitability through the eyes of the owners. As mentioned above, we will focus on return on capital employed (ROIC), which is a measure of return on the company's investments (Damodaran, 2012, p. 45) and a better analytical tool for understanding a company's operational performance then for example ROE (Koller et al. 2010, p. 166). Because profits are measure over an entire year, whereas balance sheet capital are measured only at one point in time (beginning and end of the year), we have used average measures of capital (starting and end of the year).

Although ROIC is a good overall measure of operating performance, it's sometimes unclear whether the company's ROIC is driven by its ability to maximize profitability or its ability to optimize capital utilization (Koller et al. 2010, p. 169). ROIC can therefore be decomposed into operating profit margin[2], and turnover ratio[3]. We will also compare ROIC to the company's WACC (weighted average cost of capital), to see if the company has created value for its shareholders or not.

Later in the analyses we will look at the return on equity (ROE), which measures profitability from the equity investors perspective (Damodaran, 2012, p. 46). We will also look at the relationship between ROIC and ROE by decomposing ROE into spread[4] and FGEAR[5].

A liquidity analyse will also be made, where we take a closer look at liquidity measures such as current ratio, quick ratio, solvency ratio and interest coverage ratio.

[2] Profit margin = Net operating profit after tax (NOPAT)/Total revenue

[3] Turnover ratio= Total revenue/average invested capital

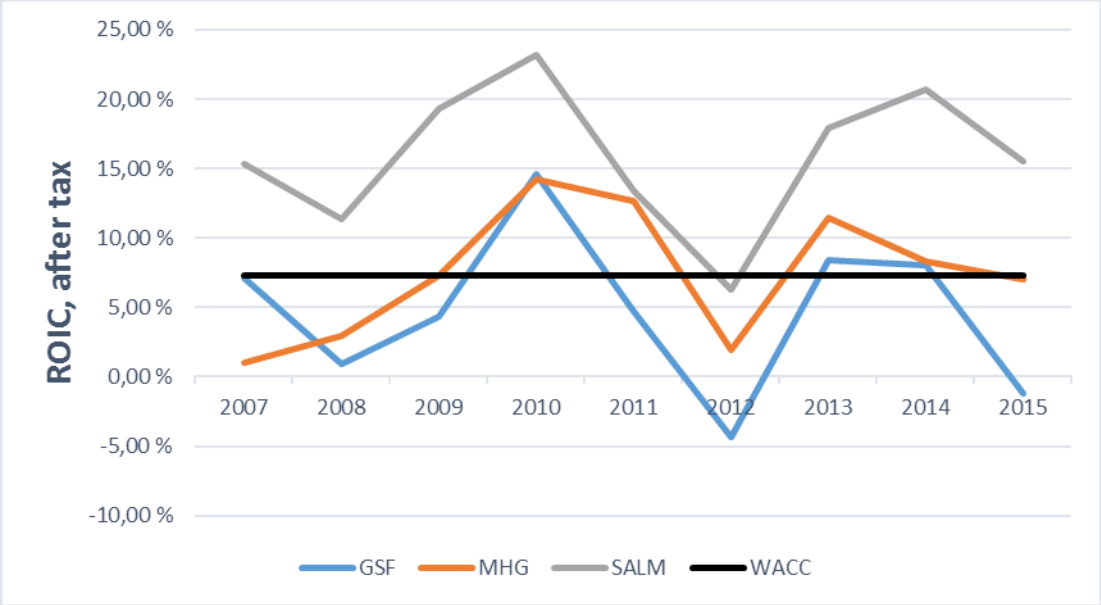
[4] Spread= ROIC-Kd*(1-t)

[5] .FGEAR= debt/equity

A summary of key financial ratios for GSF and peers can be found in appendix 3.2.

3.2.1 ROIC – decomposion of ROIC

We will start by analysing the historical development in GSF after tax ROIC, and compare this to its peers. If we compare this to GSFs WACC we can find out if they have created value for their shareholders through the years or not.



Graph 3. 1 Historical ROIC. Source: Authors creation/ ARs GSF and peers

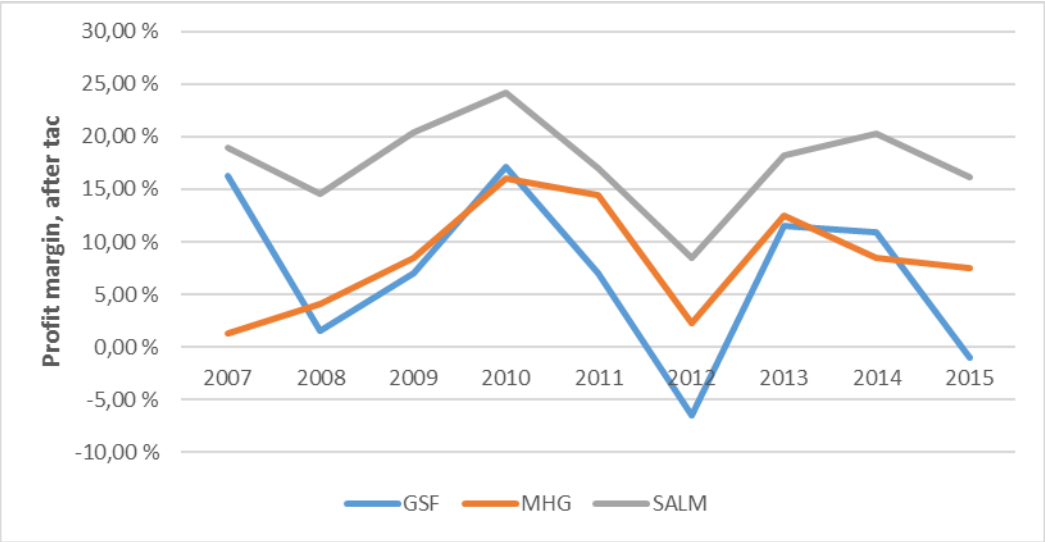
As illustrated by graph 3.1, the historical ROIC has varied a lot through the years and seems to be very volatile. The historical ROIC has a clear cyclical tendency due to the historical development in the salmon price, which clearly can be found for the other competitors in the industry in the same time period. Considering the WACC is 7.32%, ROIC is not very satisfying for the most part, except in 2010. 2013 and 2014. The main reason for the low ROIC in 2007, 2008, 2011 and 2012 is because of low salmon prices in the market. The low ROIC in 2015 is a result of the accounting consolidation with OQ, and as a result of a bad second half of 2015 in Shetland (Greig Seafood, 2016b, p. 12).

As mentioned above, the peer group development is very much in line with GSF. This is because the whole salmon industry is highly affected by the development in salmon prices. At the same time, graph 3.1 indicate that both MHG and SALM outperform GSF almost throughout the period. It's important to understand that this does not necessarily mean that MHG and SALM create more value for their owners then GSF, the reason being that we

don't know the WACC of these companies. But assuming these companies have similar WACCs, it's highly likely both companies outperform GSF in this period.

3.2.2 Profit margin

As mentioned above, ROIC can be decomposed into profit margin and turnover ratio. This means that a company can increase its ROIC by increasing its profit margin or by utilizing its capital more efficiently.



Graph 3. 2 Profit margin. Source: Own creation/ ARs GSF and peers

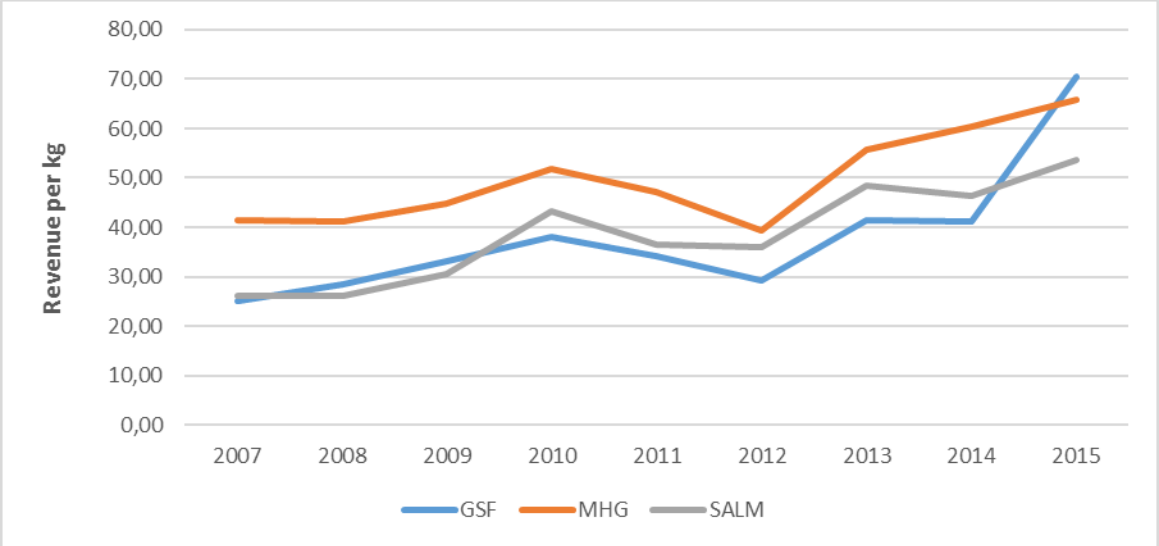
The basic tendency is more or less the same for profit margin as it is for ROIC, as seen in graph 3.2. Profit margin can mainly be explained by the development in revenues and cost, which we will take a closer look at below.

Development in revenue

When comparing companies, it's preferable to use relative numbers instead of absolute numbers. This makes for a more intuitive analysis. For this reason, we have decided to use revenue and cost per kilo (KG) harvested volume when looking at the development in revenue and costs. This is a normal exercise when analyzing companies within the salmon industry.

In General, GSF has had a drastic growth in revenue between 2007 and 2015. Operating revenue has grown by 335,88% in this period, and the CAGR (compounded average growth rate) has been 23,79 %. (much because of consolidation with OQ in 2015). The only year where they didn't experience growth in revenue was in 2011, and this was mainly because of

low salmon prices in the market. As shown in section 4.4, the overall growth in salmon prices has been positive, and is the main reason for the rapid growth in revenue.



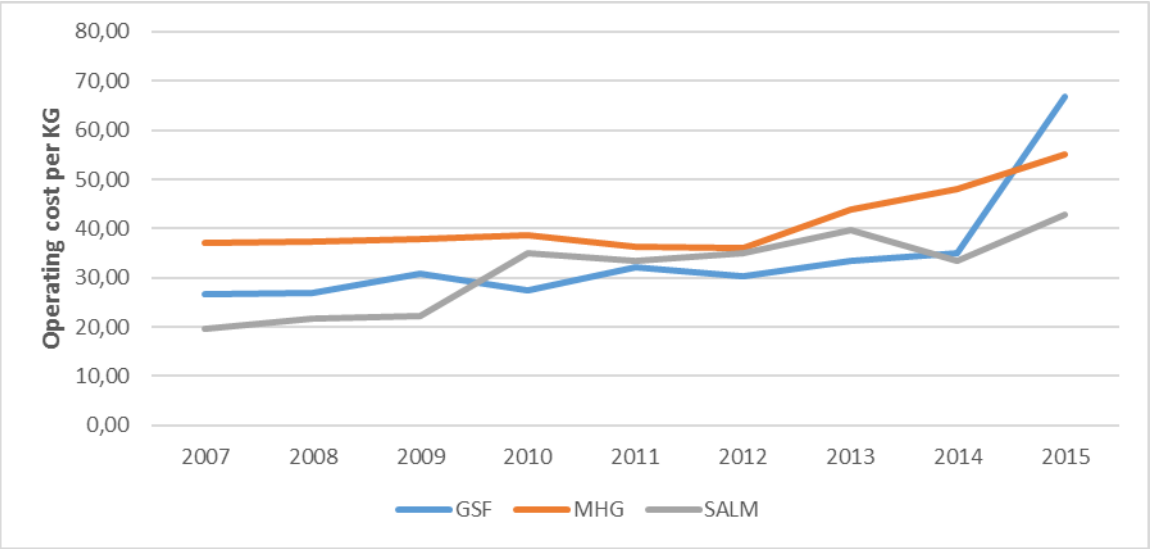
Graph 3. 3 Operating revenue per kg. Source: Own creation/ARs GSF and peers.

From graph 3.3 we see that the operating revenue per kg has gone up from around 25 kr. per kilo to 70,47 kr. per kilo in 2015 (the big jump in 2015 is due to consolidation with OQ). The trend has been upwards sloping from 2007-2010 and from 2012-2014. Between 2010-2012 there was a negative development in operating revenue per kilo because of low salmon prices.

As for both ROIC and profit margin, all the companies mirror one another when it comes to development in revenue per kilo. They all follow the same basic trend, and we can also see both MHG and SALM outperform GSF almost everywhere (except SALM in 2008 and 2009). They all have the same standard deviation in operating revenue per kilo, meaning their dependency on underlying salmon prices are nearly the same.

Development in operating costs

With increasing operating revenue comes increasing operating costs. Operating cost as an absolute value has grown steadily in 2007-2015 with the exception of 2013 and 2015. Total growth in operating cost in this period has been 304,87%, which is notably less then total growth in operating revenue (335,88%).



Graph 3. 4 Operating costs per kg. Source: Own creation/ARs GSF and peers

The development in operating cost per kilo has not been as significant as the absolute change in operating costs, and it has varied a lot more than the absolute numbers. In 2007 operating costs per kilo was 25,5 and in 2014 it was 35. The main reason for the big increase in 2015 is as mentioned because of the consolidation with OQ. Operating cost mainly consists of feed, vaccination and medicines (Grieg, 2015a, p. 83), and are highly affected by the change in prices of these commodities (Grieg, 2015a, p. 11).

Operating cost per kg has gone up in 2012-2014 for different reasons. In 2012 there where a weak biological development in Shetland due to challenges related to sea lice and AGD (amoebic gill disease) which lead to increased cost of medicines and a high mortality rate (Grieg, 2013, p. 12-14). In 2013 the biological situation where better in Shetland, but an outbreak of furuculosis in British Colombia (BC) affected operating cost negatively (Grieg, 2014, p. 11). Feed prices also increased in both 2013 and 2014 due to development in commodity prices (Grieg, 2015, p 11), as well as increased treatment costs (Grieg, 2014, p. 11). GSF also experienced a drastic reduction in production in 2013, which also contributed to higher cost per kilo (Grieg, 2014, p. 11).

As mentioned above, the price for raw materials for production of fish feed has gone up in 2014. The main reason for this was lack of supply from Chile due to the difficult biological situation in that region (FondsFinans, 2015, p. 25). Fish feed prices has continued to increase in 2015 (Grieg seafood, 2016b, p. 12).

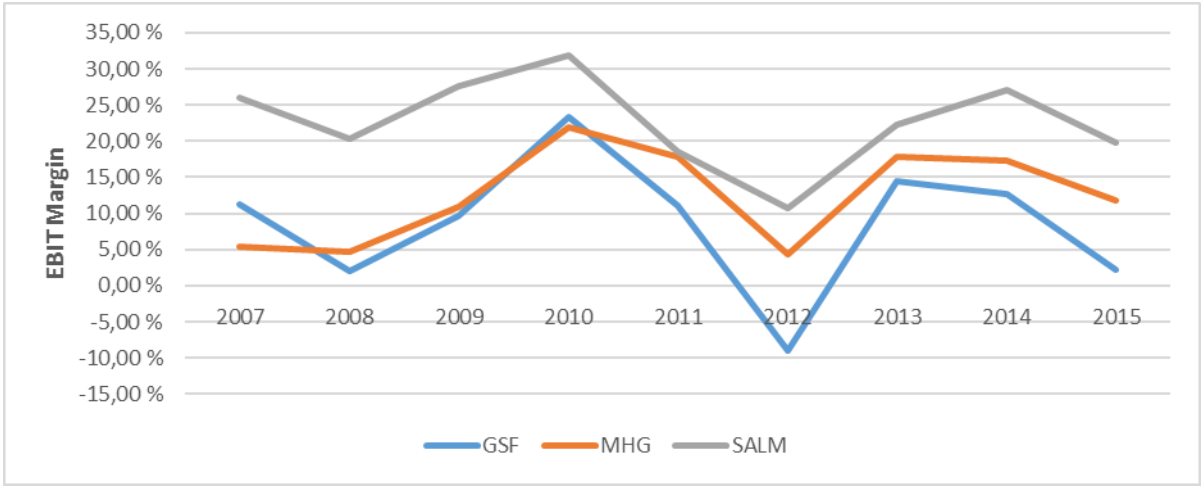
Salaries and other personnel expenses has grown steadily through the years, due to higher salaries and more employees. This is of course a natural result of a growing business.

Other operating expenses has also increased over the years. As for Salaries and other personnel expenses this is a natural result of a growing business. Other operating expense mainly consists of maintenance costs, electricity and fuel, outsourced services and insurance.

When we compare GSF operating cost per kilo with other peers in the market, we can see GSF has had a more stable development then SALM, and that GSF outperform SALM in this area since 2010 until 2015. It's also clear that MHG have substantial higher operating cost per kilo then both GSF and SALM in the period 2007-2010 and 2012-2014, mainly since they focus more on VAP then both GSF and SALM. All companies experience increased cost per kilo in 2015.

EBIT Margin

Ultimately EBIT margin looks very much the same as profit margin (profit margin is after tax, and EBIT margin is before tax). As for profit margin, all companies have had the same general development. We also see the development being dramatic in some cases, which is a clear indication of profit being highly volatile. This has been shown above when looking in more detail on the development in both operating revenue and costs.



Graph 3. 5 EBIT margin GSF and peers. Source: Own creation/ARs GSF and peers.

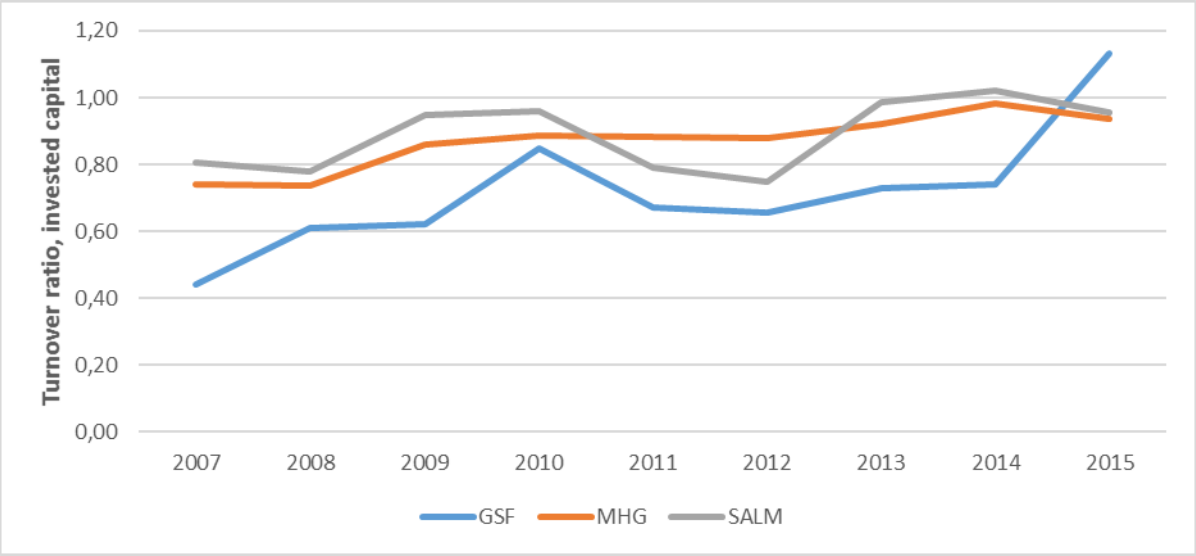
In 2008-2010 GSF experienced an increase is EBIT margin due to an increase in operating revenue per kilo, which were higher than the increase in operating costs per kilo. In 2011 the salmon price began to decrease again, and was at year low in week 43 with a price of just

18,09 per kilo (Fishpool, 2016) as seen in section 4.4. This resulted in a big drop in revenue per kilo, which was slowed down a bit because of a positive development in cost per kilo in the same year. In 2012 the salmon prices were low throughout the whole year. This resulted in a negative EBIT and profit margin. The increase in 2013 was due to higher salmon prices and 2014 EBIT margin decreased because of a stabile revenue and an increase in costs per kilo.

As mentioned above, the peer group has had the same basic development in this period in time. SALM has been the peer group industry leader, with an average EBIT margin of 22,67 %. By comparison GSFs average EBIT margin has been 8,62%. All companies experienced a decreasing EBIT margin in 2015.

3.2.3 Turnover ratio

As mentioned above, a company can increase its ROIC by increasing its turnover ratio (Damodaran, 2012, p.46). Turnover ratio is a measure of capital utilization, and can be increased by utilizing capital more efficiently (Damodaran, 2012, p. 46).



Graph 3. 6 Turnover ratio invested capital GSF and peers. Source: Own creation/ARs GSF and peers.

The salmon farming industry is characterized as being very capital intensive (Marine Harvest, 2015, p. 37). This is result of a long production cycle, marked conditions and many external factors that play a major role in the production process (Marine Harvest, 2015, p.37). High capital investments equal low turnover ratios.

In this case, a higher turnover ratio means a better capital utilization. As shown in graph 3.6 we can see GSF having the lowest turnover ratio compared with peers (except from 2015), and also having the highest historical fluctuations[6]. The fall in turnover ratio in 2011 and 2012 is because of decreasing revenue, as mentioned above. MHG have the steadiest development in turnover ratio, with a stable annual growth. SALM's historical turnover ratio fluctuate more, but they have the highest turnover ratio in 2007-2010 and 2013-2014.

3.3 Decomposing ROE

While ROIC measures the profitability of the entire company, the return on equity (ROE) measures profitability from the owner's perspective, by relating net operating profit after tax (NOPAT) to the average book value of equity[7] (Damodaran, 2012, p. 46).

ROE is affected by the capital structure the company uses to finance its projects. A company that borrows money to finance projects, and that earns a ROIC on this investment exceeding the after tax interest rate (NBC) on its debt, will be able to increase its ROIC by borrowing (Damodaran, 2012, p.46). This is called debt gearing. Therefore, ROE[8] can be decomposed into spread and FGEAR.

3.3.1 FGEAR

FGEAR equals net interest bearing debt (NIBD) over average equity at book value.

FGEAR	2007	2008	2009	2010	2011	2012	2013	2014	2015
GSF	0,91	1,23	1,26	0,73	0,71	0,98	0,90	0,77	0,84
MHG	0,53	0,65	0,62	0,46	0,56	0,57	0,51	0,69	0,82
SALM	0,64	0,71	0,71	0,79	1,13	1,21	0,62	0,40	0,49

[6] Almost exactly 100% difference in GSFs lowest and highest turnover ratio in this period.

[7] ROE= NOPAT/average equity

[8] ROE=ROIC+(ROIC-Kd*(1-t))*D/E

ROIC-Kd*(1-t)= Spread

D/E= debt over equity, also called FGEAR

Kd=Cost of debt, also called net borrowing cost (NBC)

Table 3. 1 FGEAR GSF and peers. Source: Own creation/ARs GSF and peers.

As we can see from table 3.1, GSFs FGEAR has varied a lot in the period. Since 2009 the general tendency has been a decreasing FGEAR, except 2012 and 2015. The increase in 2015 is because of a higher increase in NIBD compared to increase in equity at book value.

The general trend in the industry seems to be less financing through debt, and more through equity. MHG has had a fairly stable FGEAR in the period, but both GSF and SALM seems to be trying to decrease its debt financing the last few years.

3.3.2 Spread

As shown below, we can find the spread by taking ROIC minus net borrowing cost. In order for leverage to increase shareholder value, the spread needs to be positive. In other words, ROIC has to be higher than net borrowing costs.

Spread	2007	2008	2009	2010	2011	2012	2013	2014	2015
GSF	5,04 %	-3,30 %	-8,29 %	17,32 %	4,85 %	-5,73 %	3,17 %	4,27 %	-3,97 %
MHG	4,89 %	2,83 %	-16,61 %	18,57 %	10,28 %	3,47 %	9,65 %	-0,04 %	-1,26 %
SALM	10,34 %	6,79 %	13,71 %	22,06 %	11,53 %	2,25 %	13,09 %	29,22 %	12,11 %

Table 3. 2 Spread, GSF and peers. Source: Own creation/ARs GSF and peers.

Net borrowing cost is found by dividing net financial expenses by the average net interest bearing debt (NIBD).

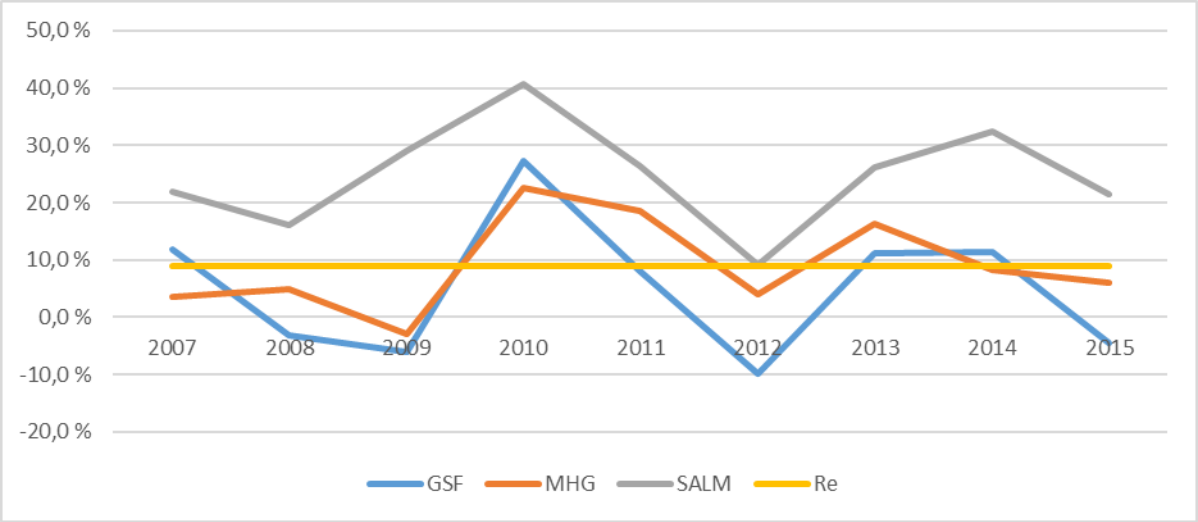
NBC	2007	2008	2009	2010	2011	2012	2013	2014	2015
GSF	2,10 %	4,23 %	12,64 %	-2,76 %	-0,14 %	1,43 %	5,23 %	3,76 %	2,78 %
MHG	-3,90 %	0,16 %	23,94 %	-4,37 %	2,41 %	-1,51 %	1,83 %	8,39 %	8,28 %
SALM	5,00 %	4,58 %	5,64 %	1,14 %	1,87 %	4,06 %	4,85 %	-8,56 %	3,40 %

Table 3. 3 Net borrowing costs GSF and peers. Source: Own creation/ARs GSF and peers.

As we can see from table 3.3, GSFs NBC has been fairly low in this period. The exception is 2009 were the net financial expenses where unusually high because of a big loss in forward foreign exchange contracts. GSFs NBC have also been unstable in this period, resulting in an unstable spread in the same period. The spread has been positive most years, with the exception of 2008, 2009, 2012 and 2015. It's also interesting to observe MHGs and SALMs spread being positive the entire period, which is positive.

3.3.3 ROE

As we can see from graph 3.7, GSF ROE has varied a lot and been negative in 2008,2009, 2012 and 2015.



Graph 3. 7 Return on equity, GSF and peers. Source: Own creation/ARs GSF and peers.

Considering GSFs required return on equity is 8,88% (calculated in section 6.2), there are not many years GSF have a satisfying ROE. All the companies follow the same trend, as we can see from graph 3.7, but SALM clearly outperform both GSF and MHG in this area. In SALMs worst year they still had an ROE of 9%, and their average ROE in this period is 25,2%. GSF only have an average ROE of 5,1%, while MHG have an average of 9%.

3.4 Liquidity analysis

In this section we will look at both short-term and long-term liquidity ratios, which in different ways measure financial risk and the company's ability to meet future financial obligations.

3.4.1 Short-term liquidity risk

When measuring short-term liquidity risk, we will primarily look at current ratio[9] and quick ratio[10]. Short-term liquidity risk primarily arises from the need to finance current operations.

[9] Current ratio= Current assets/Current liabilities, (Damodaran, 2012, p.49).

If the company has to pay its suppliers before they get paid for goods sold, there are usually a cash shortfall which has to be met mainly through short-term borrowing (Damodaran, 2012, p. 48). The current ratio measures current assets over current liability, and a current ratio under 1 would indicate more financial obligations then assets which can be turned into cash. A current ratio under 1 is therefore an indication of liquidity risk (Damodaran, 2012, p. 49).

2010	2011	2012	2013	2014	2015			2010	2011	2012	2013	2014	2015	
Current ratio						avg.		Quick ratio						avg.
2,95	1,59	1,81	2,24	2,30	2,34	2,20	GSF	0,20	0,13	0,24	0,16	0,14	0,29	0,20
3,63	3,40	2,92	3,15	3,22	3,34	3,28	MHG	0,10	0,10	0,10	0,12	0,25	0,12	0,13
3,35	2,02	2,08	4,24	3,05	2,89	2,94	SALM	0,15	0,04	0,04	0,87	0,11	0,16	0,23
3,31	2,34	2,27	3,21	2,85	2,86	2,80	avg.	0,15	0,09	0,13	0,39	0,17	0,19	0,18
Days accounts receivables outstandir						avg.		Days accounts payable outstanding						avg.
34	43	31	23	29	33	32	GSF	95	93	83	106	98	64	90
42	43	44	47	47	48	45	MHG	65	64	55	67	57	51	60
35	44	51	39	39	42	42	SALM	60	70	78	72	85	82	74
37	43	42	36	38	41	39	avg.	74	76	72	82	80	65	77

Table 3. 4 Short-term liquidity, GSF and peers. Source: Own creation/ARs GSF and peers.

In the period in question, GSF has had a U-shaped development in their current ratio. Traditional analysis suggest that companies should maintain a current ratio of around 2, but there is a clear trade-off between minimizing liquidity risk and tying up too much capital (Damodaran, 2012, p. 49), A high current ratio can be an indication that a company struggles to reduce its inventory. GSF has the lowest current ratio of the three companies, which isn't necessarily a bad thing in this case.

The quick ratio is a decomposition and a variant of the current ratio. Instead of using all current assets in the formula, on use cash and other marketable securities in relation to current liabilities. In our analysis we have used cash and cash equivalence and some marketable securities if the companies had them. One could also take into account inventories and other current assets if there was evidence that these assets could be liquidated quickly. To make the quick ratio comparable and consistent, we decided to only use cash and cash equivalence and marketable securities in our analysis. As we can see from table 3.4, GSFs quick ratio has varied through the years. It went down from 2013 to 2014, and then went way up in 2015. The average quick ratio is right on the industry average in the

[10] Quick ratio= Cash +Marketable securities/ Current libabilities, (Damodaran, 2012, p. 49).

period. MHG is the only company with a stable or growing quick ratio, whilst SALM has had big variation in their quick ratio. 2013 stands out because of unusual amounts of bank deposits, which were restricted and therefore not to representative in this analysis (Salmar, 2014, p. 84).

We have also taken a look at days of accounts receivables outstanding[11] and days accounts payable outstanding[12]. It can be difficult to calculate an exact number for purchases in a year, so we have therefore used cost of materials as an estimate for purchases. When it comes to accounts receivables it's preferable to receive payment as soon as possible, and for accounts payable it's preferable to pay as late as possible. A low number of days for accounts receivables and a high number of days for accounts payables is therefore optimal. As we can see from table 4.4 above, GSF has its accounts receivables outstanding the shortest period of time, and its accounts payables outstanding the longest. This is an indication of a safely ran company.

3.4.2 Long-term liquidity risk

In the long-term, we want to examine more closely the company's ability to meet interest and principal payments (Dmodaran, 2012, p. 50). The main focus will be on solvency ratio[13] and interest coverage ratio[14]. A low solvency ratio can be an indication of long-term liquidity risk, all else equal. If the firm's capital structure is a result of an optimal decision, the firm might decide to lower their solvency ratio. This might be the case for companies with low liquidity risk to begin with.

As for the current ration, GSFs solvency ratio has a U-shape. Both SALM and GSF have similar average solvency ratio in this period, but SALMs ratio has been much higher the last three years. MHG has the highest average solvency ratio of the three, but had a negative trend in both 2013 and 2014. Based on the solvency measure, we deem GSF long-term

[11] Days accounts receivables outstanding = 365/ (sales/average accounts receivables), (Damodaran, 2012, p. 49).

[12] Days accounts payables outstanding = 365/ (Purchases/Average accounts payables), (Damodaran, 2012, p. 49).

[13] Solvency ratio = Equity/ Equity and total liabilities.

[14] Interest coverage ratio = EBIT/ interest exspenses, (Damodaran, 2012, p. 50).

liquidity risk to be low.

2010	2011	2012	2013	2014	2015			2010	2011	2012	2013	2014	2015	
Solvency ratio						avg.		Interest coverage ratio						avg.
0,49	0,40	0,36	0,43	0,43	0,37	0,41	**GSF**	11,09	3,77	-1,69	3,32	3,27	0,78	3,42
0,53	0,46	0,49	0,47	0,39	0,42	0,46	**MHG**	8,94	7,05	1,73	5,39	8,12	7,98	6,53
0,40	0,33	0,37	0,51	0,51	0,47	0,43	**SALM**	22,99	7,35	3,05	8,47	15,93	14,81	12,10
0,47	0,39	0,41	0,47	0,44	0,42	0,44	**avg.**	14,34	6,06	1,03	5,73	9,11	7,86	7,25

Table 3. 5 Long-term liquidity risk, GSF and peers. Source: Own creation/ARs GSF and peers.

The interest coverage ratio measures the company's capacity to meet future interest payments from pre-debt, pre-tax earnings (Damodaran, 2012, p. 50). Since almost all of the financial expenses are interest payments, we have used financial expenses when calculating interest coverage ratio. In this case it's preferable to have a high interest coverage ratio. GSF has both the lowest average interest coverage ratio and the lowest interest coverage ratio in 2015, as seen in table 3.5. As mentioned, we do not think 2015 is very representative. We can see the same basic trend for all the firms in this period, with a clear U-shape. They all have their lowest ratio in 2012, due to low EBIT as a result of low salmon prices (as explained earlier in this chapter). At the same time, we see that SALM has the overall best interest coverage ratio of the three, with GSF well below the industry average. Based on these calculations, GSF has a higher long-term liquidity risk then other peers in the industry.

In view of the liquidity analysis above, we consider GSF short-term liquidity risk to be fairly low, but the long-term liquidity risk to be higher. When considering prospects for the salmon farming industry being positive in general, the liquidity risk probably won't be a problem in the near to medium future.

3.5 Conclution financial analysis

Strengths	Weaknesses
- High growth in revenue - Lowest cost per kilo last 4 years - Stabile growth in costs - Low short-term liquidity risk	- Lowest average ROIC - Lowest average profit margin - Lowest turnover ratio - Lowest historical ROE - Earning and profitability depends on one commodity - Highest long-term liquidity risk

4. Strategic analysis

In this chapter we examine the strategic aspects of GSF's position as a player in the salmon farming industry. First, we will start by addressing non-financial value drivers through a VRIO analysis. Moving further, we will use Porter's five forces framework to examine the industry from an external point of view and compare GSF to other players based on their different outlooks. Last but not least, we change the scope and look at the macro aspect of the salmon farming industry through a PESTEL analysis. In addition, we have a section on salmon price with a strategic point of view, considering how supply and demand can affect salmon prices.

Moreover, we are interested in finding any sign of competitive advantage/disadvantage. Companies can sustain strong growth and high return on invested capital if they have a well-defined competitive advantage (Koller et al. 2010, p. 4). Which also raises the question: Which key factors influence GSF's cash flows and their profitability? And are these the same for the industry as a whole? At the end we will combine the findings from the financial analysis and the strategic analysis and conduct a SWOT analysis.

4.1 VRIO analysis

To assess if Grieg Seafood have any competitive advantages we will look at the firm's resources, and more specifically look at their value chain using Barney's VRIO framework. We are especially looking to find four empirical indicators that is – value, rareness, imitability and substitutability (Organization) (Barney, 1991, p. 106-111). The VRIO framework provides an internal analysis that is useful in finding the firms strengths and weaknesses when it comes to their resources. It is essential for companies to understand their industry and to manage any potential sustained competitive (dis)advantage.

A firm is said to have a sustained competitive advantage "when it is implementing a value crating strategy not simultaneously being implemented by any current or potential competitor and when these other firms are unable to duplicate the benefits of this strategy" (Barney, 1991, p. 102). The definition of sustained competitive advantage does not depend upon calendar time, rather whether other competitors can duplicate this advantage. It's also important to specify that a sustained competitive advantage does not imply that it will "last

forever". The competitive environment changes all the time, and some resources that where considered as a competitive advantage at one point may not be resourceful later in time (Barney, 1991, p. 102-103).

As mentioned above, the VRIO analysis focuses on internal resources. Barney classify these resources into three categories: physical capital/assets, human capital and organizational capital (Barney, 1991, p. 101). In this analysis we will focus on physical capital, and treat human and organizational resources as supplementary and mention them where they play a crucial role. We will begin by evaluate GSF value chain.

4.1.1 Eggs and smolt production

The first step in the value chain is egg and smolt production. This is the first step in what is a three-year production cycle. GSF get most of their eggs internally, except from in BC where they use external suppliers. Most companies use external suppliers of eggs, and the main suppliers in this industry are Aquagen AS, Fanad Fisheries Ltd, Lakeland and Salmobread AS (Marine Harves, 2015a, p. 33).

When it comes to smolt production, GSF has invested heavily in new technology that makes better use of fresh water then before. Since 2007 they have implemented a strategy for recycling fresh water in their smolt sites in order to use less fresh water. These smolt sites only need 0,1%-1% of the fresh water compared to traditional flow-through systems. This saves energy from heating water to the right temperature, and much less dependent on supply of fresh water. Another advantage of fresh water recycling is the possibility to keep the fish on land for longer, and even after smoltification (pre-smolt). This of course reduces the time the salmon spend in the sea (Greig, 2016c). This is also a growing trend in the salmon industry in general (Marine Harvest, 2015a, p. 33).

All production region are now self-supplied post-smolts, and do not rely on external suppliers (Grieg, 2016c). At the same time Grieg has not reached its goal when it comes to mortality rates. The main reason for this has been smolt quality (Grieg, 2015, p. 25).

Overall, we think GSF has performed average in this stage in the value chain, even though the fresh water recycling is a promising innovation.

4.1.2 Farming and harvesting

Farming and harvesting efficiency is a very important stage in the value chain when it comes to value creation. There are of course many different ways of measuring efficiency at this stage in the value chain, but we find it intuitive to look at yield per licenses in each production region and then compare the overall yield of the company to peers in the industry. Because of regulatory differences when it comes to licenses and MAB (maximum allowed biomass) in different countries, we have decided to just compare farming in Norway.

Grieg seafood Rogaland AS	2012	2013	2014	2015
Volum	19 247	15 088	12 778	15 236
Licenses	20	20	20	20
Yield per license	**962**	**754**	**639**	**762**

Grieg seafood Finmark AS	2012	2013	2014	2015
Volum	20 080	23 076	26 470	19 481
Licenses	24	24	28	28
Yield per license	**837**	**962**	**945**	**696**

Grieg seafood Hjaltland UK Ltd	2012	2013	2014	2015
Volume	17 097	13 158	19 231	16 370
Licenses	31	39	39	39
Yield per license	**552**	**337**	**493**	**420**

Grieg seafood BC Ltd	2012	2013	2014	2015
Volume	13 576	6 739	6 257	14 311
Licenses	21	21	21	21
Yield per license	**646**	**321**	**298**	**681**

Table 4. 1 Efficiency per region GSF. Source: Own creation/ARs GSF.

Efficiency	2012	2013	2014	2015
Total volum	70 000	58 061	64 736	65 398
Total licenses	96	104	108	108
Total yield per license	729	558	599	606
Volum Norwy	39 327	38 164	39 248	34 717
Licenses Norway	44	44	48	48
Yield per license Norway	894	867	818	723

Table 4. 2 Efficiency overall and Norway GSF. Source: Own creation/ARs GSF.

If we look at the overall efficiency of GSF, it has gone up and down the last four years. If we just look at Norway it has gone down in the same period. It went down in 2013 because of low production as a result of low sea water temperatures in the winter of 2012, and because of a difficult biological situation in both Rogaland and Finnmark (Grieg, 2014, p. 11-12). Biological difficulties in Rogaland is also the main reason for the downturn in 2015 (Greig, 2016b, p. 12).

GSF has performed well below the industry average in this period. The overall average harvested volume per license in Norway in 2014 where around 1200 tonnes GWE (Marine Harvest, 2015a, p. 58). SALM is clearly the overall most efficient producer of salmon in

Norway the last four years with an average yield per license of 1 317. It seems that GSF has a utilization problem when it comes to farming and harvesting, while the general consensus in the Norwegian salmon industry is that companies are almost at the limit when it comes to MAB per license (Marine Harvest, 2015a, p. 58). This is a problem GSF themselves have addressed (Grieg, 2015, p. 16) (Greig, 2016a, p. 6).

As we know, companies are limited when it comes to MAB per license. Therefore, an important part of farming and harvesting salmon is R&D projects which can improve efficiency. An important part of farming salmon is fish health, sea lice control and escape control, which is a big priority for GSF and peers (Grieg, 2015, p. 19).

It's also important to develop new production technology-and processes to get a competitive advantage. In this area, both MHG and SALM seems to be further along than GSF. MHG have at the moment an ongoing R&D project that can revolutionize the Norwegian salmon farming industry in Norway (Lilleby, 2016). This eggshaped contraption can help solve the challenges of sea lice and fish escape (Lilleby, 2016). MHG have increased their R&D efforts a lot the last four years (Marine Harvest, 2015b, p. 29). They have also successfully started their own fish feed productions, which makes them less dependent on external suppliers (Marine Harvest, 2015b, p. 6). SALM has also invested substantially in R&D projects the last few years, and especially in their offshore fish farming project. This is being done through their company Ocean Farming AS (Salmar, 2015, p. 14).

Overall, we think GSF has performed under average in this stage in the value chain. They seem to have a utilization problem, and it seems that they are lingering when it comes to R&D.

4.1.3 Production and VAP

GSF sell mostly whole and filled salmon, and little ready meals, MAP (modified atmosphere) and other VAP. GSF has discontinued their VAP efforts in UK because of bad results (Grieg, 2015d, p. 4). Through Ocean Quality GSF offer a range of fresh and frozen whole or filled salmon. Most of their VAP consists of smoked and lightly processed high quality whole and filed salmon (Ocean Quality, 2016a). GSFs Canadian farms have developed a premium salmon offering – Skuna Bay Salmon – which is renowned for its quality in the North-American dining establishments, as mentioned in section 2.2 (Ocean Quality, 2016, p. 16).

The biggest markets in Europe is fillets and smoked salmon, and smoked salmon is the most common secondary product based on Atlantic salmon (Marine Harvest, 2015a, p. 72-73). Other competitors are better than GSF at this face in the value chain. There are strong brand names such as Lerøy seafood, which have a strong brand both in Norway and other European and Asian counties (Lerøy, 2016). We also see that both SALM and MHG have come a long way when it comes to production and processing. In 2010 SALM introduced its new harvesting and processing facility InnovaMar, which is an ultra-modern facility (Salmar, 2015, p. 21). MHG, which is by far the biggest company of the three, is also committed to product innovation through their newly established Marine Harvest Consumer Products (Marine Harvest. 2015b, p. 74). Most of their sold products still consists of fresh whole salmon, but have shifted towards more VAP, especially in mature markets such as Europe (Marine Harvest, 2015b, p.75-77). MHG is also the largest producer of smoked salmon in Europe (Marine Harvest, 2015a, p. 73). and the second largest in the US. after the acquisition of Morpol in 2013 (Marine Harvest, 2015b, p. 78).

Sales premium GSF	2007	2008	2009	2010	2011	2012	2013	2014	Average
Average salmon price	25,74	26,36	30,96	37,34	31,86	26,57	39,56	40,43	32,35
Revenue per kg	25,14	28,55	33,08	38,10	34,07	29,29	41,41	41,17	33,85
Premium	0,98	1,08	1,07	1,02	1,07	1,10	1,05	1,02	1,05

Sales premium Peers	2007	2008	2009	2010	2011	2012	2013	2014	Average
Avg. Revenue per kg Peers	33,74	33,74	37,66	47,55	41,82	37,64	52,15	53,33	42,20
Avg. Premium peers	1,31	1,28	1,22	1,27	1,31	1,42	1,32	1,32	1,31

Table 4. 3 Sales premium GSF and Peers. Source: ARs GSF and peers and Fishpool index.

One way to analyze if a company has a competitive advantage when it comes to production and VAP, is to see which kind of sales premium the companies manage to achieve[15]. As we can see from table 4.3, GSFs sales premium is well below the peer average. There is a consensus in the market that costumers are willing to pay for quality and value added products (Marine Harvest. 2015a, p. 71). A low sales premium is therefore an indication of under average quality in production and VAP. We have decided to exclude the results from 2015 because of the consolidation with OQ, which makes comparison less intuitive.

Overall, there are indications that GSF has an under average production and VAP. GSF doesn't seem to have the organizational structure in place at the moment, while close competitors do. There are of course potential for improvements in this area, but at the same

[15] Sales premium= Operating revenue per kg/average salmon price.

time there seems to be a lot of ground to cover if they want to compete at this stage in the value chain. GSF seems to haves a low cost strategy, rather than focusing much on differentiation through VAP and product innovation.

4.1.4 Sales and distribution

As mentioned in section 2.2, all sales are handled by Ocean Quality, a joint venture company owned by GSF (60%) and Bremnes Fryseri AS (40%). They focus on fast processing with packaging stations located close to GSFs markets. This ensures that their products are as fresh as possible when delivered (Ocean Quality, 2016a). All processing and distribution sites are in close relation to GSFs farming sites in both Norway (Finnmark, Rogaland), Shetland and BC. The northerly location in Finnmark means close proximity to the Russian and East-European markets. GSF production sites in Rogaland is closer to the UK and European market than any other production region in Norway, the production site in Shetland is of course close to the same markets and the production site in BC Canada is close to the North-American markets (Ocean Quality, 2016, p. 9).

Ocean Quality has pure sales departments in both Norway, UK and in BC North-America, but the main office is located in Bergen, Norway (Grieg, 2015, p. 9). Ocean Quality has had a strong revenue growth since it was established. In 2011 their sales revenue was just under 2 billion, and in 2015 their sales revenue was almost 4,55 billion. Some of this growth has to do with them opening new regional office in both Shetland and BC Canada.

Other industry peers also have sales and distribution channels in place to sell their salmon. SALM sales and processing department handles all of SALM harvested volume (whit the exception of the joint venture with Lerøy in Finnmark, Norway) and had sales revenue in 2014 of almost 7,3 billion (Salmar, 2016, p. 43). MHGs business area Sales and Marketing consists of markets and processing operations in America, Asia and Europe, MHG VAP and Morpol. The market operations in America, Asia and Europe is considered having the same economic characteristics, and are therefore considered as one segment. MHG VAP and Morpol were consolidated in 2015, and are therefore now considered as one business unit called MHG Consumer products. In total, MHG sales and marketing had a sales revenue of 27 billion in 2015 (Marine Harvest, 2016, p. 153-154).

The most important fact is that GSF has the lowest revenue per kg sold, and the lowest sales premium amongst peers. At the same time, GSFs sales and distribution company Ocean

Quality has good potential for further growth. Therefor we won't classify its outlook as a disadvantage. Having such a sales and distribution channel can't be seen as rear however. We also think GSFs performance through Ocean Quality is average at best. Therefor we don't think GSF have a competitive advantage at this stage in the value chain, and as seen above and in section 3.2.2,

4.1.5 Summary VRIO-analysis

Value chain	Resource	Valuable?	Rare?	Imperfectly imitable?	Substitutability?	Performance	Competivie implication	Outlook
Eggs/smolt production	Eggs production	Yes	No	No	Yes	Average	Natural	Average
	Smolt production	Yes	No	No	Yes	Average	Natural	
	Fresh water recycling	Yes	No	No	Yes	Good	Possible advantage	
Farming and harvesting	Harvesting	Yes	No	No	Yes	Under avergae/bad	Natural/ disadvantage	Under average/bad
	Farming	Yes	No	No	Yes	Under avergae/bad	Natural/ disadvantage	
	R&D (organizational)	Yes	No	No	Yes	Under avergae/bad	Disadvantage	
Production and VAP	Ocean Quality	Yes	No	No	Yes	Under avergae	Natural/ disadvantage	Under average
Sales and distribution	Ocean Quality	Yes	No	No	Yes	Average	Natural	Average

Table 4. 4 Summary VRIO-analysis GSF. Source: Own creation.

4.2 Porter's Five-Forces

In the previous segment we looked at the VRIO- analysis, which is an internal analysis that focuses on a company's internal resources. Porters five-forces model is more of an external analysis of the competitive environment. It focuses on understanding the competitive forces that drive competition in the industry, and understanding their underlying causes. This will reveal the roots of an industry's current profitability while providing a framework that anticipate and influence competition (Porter, 2008, p. 3). We will use Porters five forces model, originally published in 1979, and further developed by Porter himself (Porter, 2008). The model can be found in appendix 4.1.

4.2.1 Threat of entry

The threat of entry in an industry depends on barriers to entry, and how high they are (Porter, 2008, p. 3). If the barriers to entry are low, competitors react by lowering their prices and/or boosting investments to deter potential new competitors and try to run them out of business. This puts a cap on the potential profitability in the industry (Porter, 2008, p. 3). There are many barriers to entry, such as supply-and-demand economies of scale, customer switching costs, capital requirements, incumbency independent of size, unequal access to distribution channels and restrictive government policy.

Companies that produce in large volumes can enjoy *supply-side economies of scale* by spreading fixed cost over a larger volume, and thereby managing lower cost per unit (Porter, 2008, p. 3). There is clear evidence of economies of scale in the salmon industry. In Norway for example, the top 10 companies stood for 71% of the harvested volume in 2014 (Marine Harvest, 2015a, p. 27). And considering Norway is the most fragmented region in the salmon industry, we can see that the industry is dominated by big players. In Chile the top 10 companies stood for 77% of harvested volume, in the UK the top 5 players stood for 93% and in North-America the top 5 companies stood for 92% (Marine Harvest, 2015a, p. 27). Smaller companies are often targeted for takeover by bigger companies, which is evident through their M&A activities through the years. As discussed earlier in the thesis, the salmon industry is a very capital intensive industry, and for new entries to be able to compete they need to enter the market at a very large scale right away and at a probable cost disadvantage. We think there is strong evidence of supply-side economies of scale.

Demand-side benefit of scale, also called *network effects* arise in industries where customer's willingness to pay increase with the number of other buyers (Porter, 2008, p. 4). We can't find any evidence that GSF's or other peers customers are willing to pay more because of network effects. We therefor conclude that there is no demand-side benefit of scale.

Sometimes customers can experience switching costs when they change supplier. This is called *customer switching costs.* Salmon is sold to customers at predetermined contract rates or at market spot price, and there are few switching cost associated with these transactions. This is of course to other business-to-business customers. When it comes to sales made to the final user, normal households, there are few/non switching costs. This helps dampen the effects of barriers to entry.

As mentioned in section 2, the salmon industry is a very capital intensive industry. *Capital investment* is a big barrier to entry, and is characterized by financial resources that is necessary to compete. The salmon industry's long production cycle plays a big factor when it comes to the capital intensity. It can take over three years before one can see any revenue from the time the eggs are made and the salmon is sold. It requires a lot of free capital in this time span, and on top of this there has to be made initial investments in operating equipment and farming licenses. Capital investments are a big barrier to entry.

Some companies can have *incumbency advantage independent of size.* This can for example mean that the company has a cost advantage that is not available to potential rivals. This can arise from superior/preferential access to raw materials, patented technology, best geographical location and well established brand recognition (Porter, 2008, p. 4). As discussed earlier in section 2, one need licenses to be able to farm salmon. It is in most cases a long process to obtain one, and there are a very limited number of new licenses distributed by governments around the world each year. This is also a big reason why smaller salmon farming companies often are targeted for takeover by larger salmon farming companies. These licenses are also highly regulated in terms of production limitations and maximum allowed biomass (MAB). Established companies therefore have an incumbency advantage.

To be able to compete, new potential entrants must secure distribution channels for their products (Porter, 2008, p. 5). Some companies have *unequal access to distribution channels,* and as discussed in section 4.1, this is also the case in the salmon farming industry. GSF have their own distribution channel through their sales company Ocean Quality located in different regions around the world. We see the same for other peers in the industry as well. Since most companies actually have their own distribution channels, it isn't that unique in this aspect. New entrants never the less need to establish their own, which is a complex task. We therefore conclude that the salmon farming industry has unequal access to distribution channels.

Restrictive government policy is a big factor in the salmon farming industry, as discussed in section 2 and above. Licenses are required to be able to farm salmon, there are also requirements when it comes to fish health and environmental factors.

With the above analysis in mind, we conclude that there are high barriers to entry in the salmon farming industry and thereby a low threat of new entrants. We think supply-side

economies of scale, capital requirements and restrictive government policies are the three major reasons why barriers to entry is high.

4.2.2 The power of suppliers

By charging higher prices, limiting quality or service, or shifting cost to industry participants, powerful suppliers can capture more of the value for themselves. A supplier/supplier-group can be considered powerful if: 1) the supplier group/ industry is more concentrated than the industry it sells to, 2) suppliers doesn't depend heavily on the industry for its revenue, 3) high switching cost associated with changing supplier, 4) suppliers offer differentiated products, 5) there are no substitute for what the supplier is offering and 6) the supplier can credibly threaten to integrate forward into the value chain of the industry (Porter, 2008, p. 6-7).

Since the fish feed industry is the most important supplier for the salmon farming industry, it's natural to analyze this industry in more detail. In Norway, the fish feed industry has become increasingly concentrated the last decade. There are basically three main producers of fish feed. In 2014 Skrettling and Ewos had 35% each of the market, and BioMar had 22% (Marine Harvest, 2015a, p. 43). Marine Harvest has also established its own fish feed production in 2014, and aren't as dependent of external suppliers such as GSF and SALM are. The fish feed industry is more concentrated then the salmon farming industry, which makes them powerful. At the same time, there are low switching cost associated with changing suppliers, and most companies actually use several suppliers at the same time. This dampens supplier power to some extent.

Fish feed is a very crucial part of the salmon farming process, and there is no real substitute. Fish feed is made out of different raw materials, which has a big impact on the quality of the salmon. Because of the lack of substitutes, fish feed producers have the power to raise prices in order to make better profits. This is something we have seen in recent history, where fish feed producers have operated on cost-plus contracts, meaning fish feed consumers are exposed to changes in raw material prices (Marine Harvest, 2015a, p. 43).

As mentioned above, Marine Harvest has established its own fish feed production. This means they are less dependent on external suppliers. We can probably expect other salmon farming companies to follow this strategy in the years to come (controlling more of the value chain themselves).

Overall we conclude that power of suppliers is high, at least at the moment. The trend might change in the near future.

4.2.3 The power of buyers

Powerful buyers are in many cases the opposite of powerful suppliers. They can force down prices, demand better quality or service, play industry participants against each other, and thereby capture more of the value themselves. In general, buyer can be powerful if they have negotiating leverage over industry participants. This negotiating leverage can occur if: 1) there are a small number of buyers, and they purchase large quantities at a time, 2) the products the industry produces are standardized, 3) there are low buyer switching costs, 4) buyers credibly can threaten to integrate backwards in the value chain (Porter, 2008, p. 7). Also, the power of buyers can increase if they are price sensitive. The main reason why buyers can be price sensitive is that the product they purchase is a significant fraction of their cost structure, the buyer group earn low profits and therefor need to pay extra attention to their cost structure, if the buyers products are little affected by the industry participant's products or the industry's products has little effect on the buyer's other costs.

The business-to-business buyers are extremely fragmented, and there are actually thousands of smaller secondary processing companies in the world. At the same time there are several companies of significant size in the secondary processing segment, such as MHG, Icelandic group, Young's seafood, Deutsche See and Lerøy (Marine Harvest, 2015a, p. 71). A fragmented secondary processing industry is an indication of low power of buyers. There are also a very large number of end users/final customers, with low consumer power.

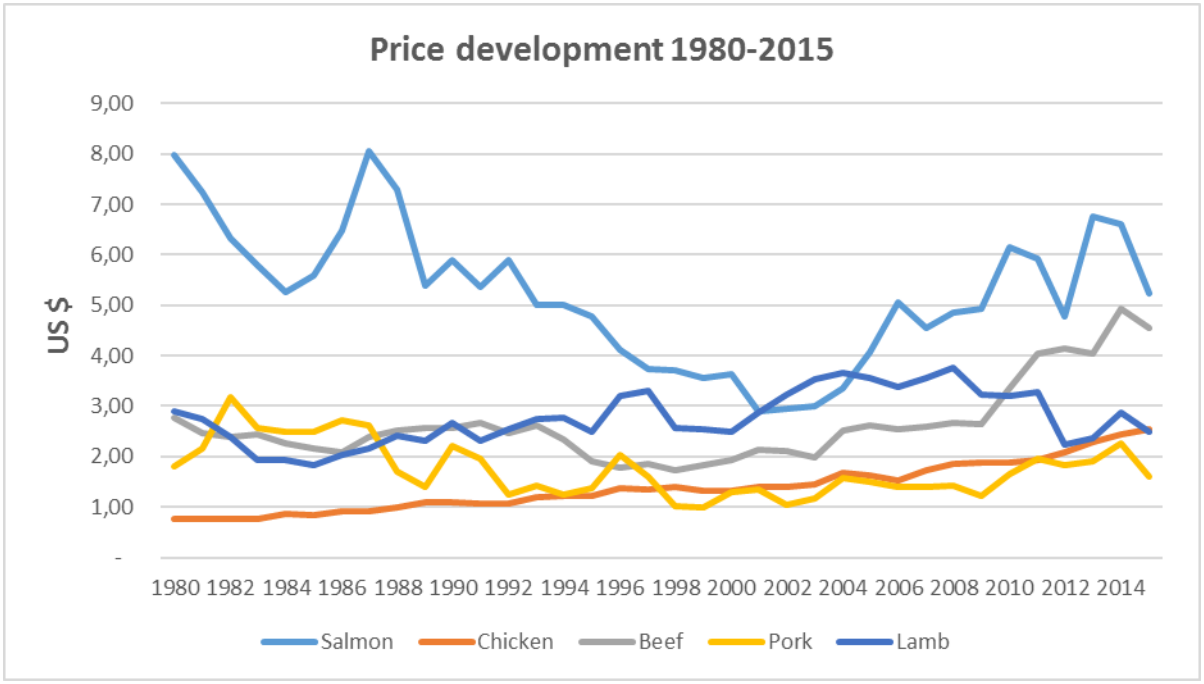
As mentioned in section 4, the salmon market is still dominated by whole fresh or frozen salmon, or lightly processed salmon such as smoked salmon and filets. There are of course different kinds of smoked salmon and filets, but still it's fair to say that these products are fairly standardized. The market for VAP is more diversified and growing, but is still a small part of the whole salmon product market. Overall we think the salmon market can be categorized as fairly standardized, considering the market is still dominated by lightly processed salmon such as smoked salmon and filets. There are also few/non switching cost involved in buying salmon products. Both these points raise the power of buyers.

The price of salmon is determined in the market, and are largely dependent on supply and demand, which we will discuss in more detail later in section 4.

Overall we think that the power of buyers is relatively low, mainly because there are a large number of buyers compared to the number of suppliers.

4.2.4 The threat of substitutes

Salmon is a good source for protein, and that is its main use. As we know, there are many other sources for animal protein, such as pork, lamb, beef, chicken and other seafood not part of the salmon industry. If another product performs the same or similar function as the product the industry produces, it is called a substitute. If the threat of substitutes is high the industry's profitability can suffer. The existents of substitutes place a ceiling on salmon prices, and how high this ceiling is depending on customer's price sensitivity. The threat of substitutes is high if: 1) it offers an attractive price-performance tradeoff (often measured in relative prices) and 2) low switching cost (Porter, 2008, p. 8)



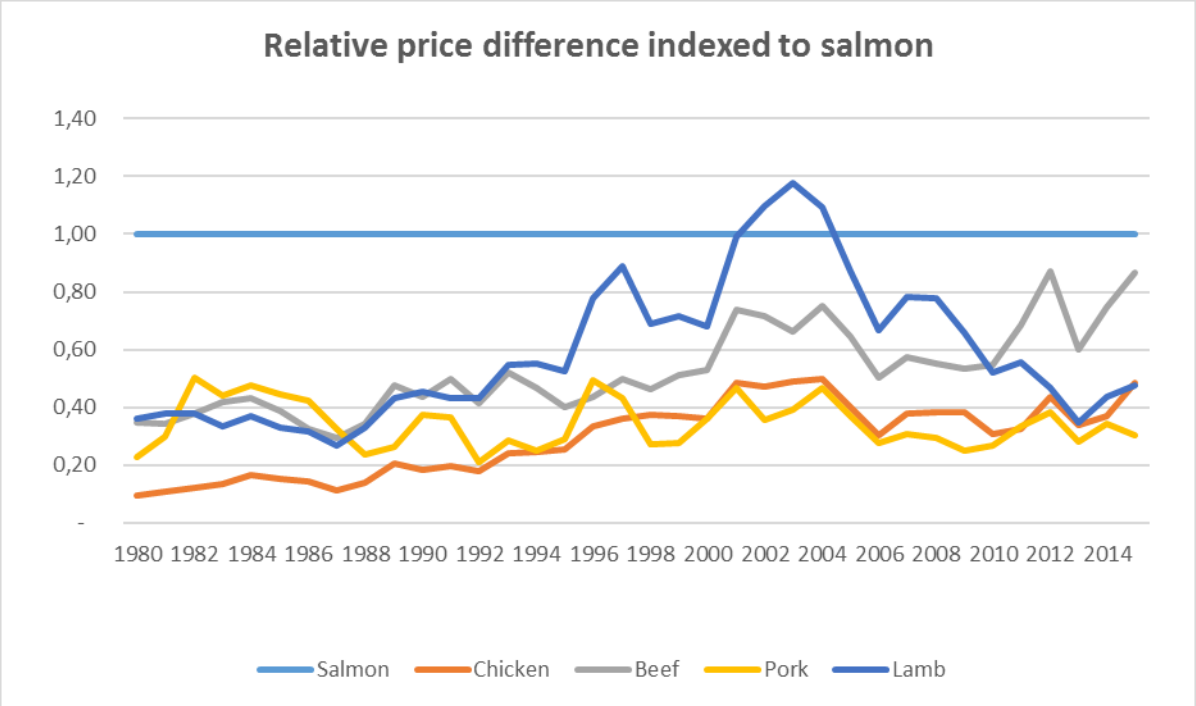
Graph 4. 1 Price development protein products. Source: Own creation/ International Monetary Fund (IMF)

If we compare prices of other animal protein products, we can see from graph 4.1 that salmon has become relatively cheaper during the last decades, and varied a lot in the last 15 years. This is mainly because of big technological development in the salmon farming industry since the 1980s. The development in relative prices the last decades has decreased the threat from substitutes. In addition to protein, salmon is generally considered rich in long chain omega-3 fatty acids, vitamin A and D, and minerals (Marine Harvest, 2015a, p. 13).

This is also highly dependent on the quality of the fish feed the salmon in feed. This can vary depending on the price of different kinds of fish feed. These nutrients can't, in most cases, be found in other animal protein products. With today's increasing focus on healthy food, this has a positive effect on the demand of salmon.

Even though salmon has become relative cheaper the last decades, it's still significantly more expensive compared to other animal protein products, as we can see from graph 4.2. This has a negative effect on the threat of substitutes. At the same time there are low switching cost for customers, which increases this effect.

Overall, we conclude that the threat of substitutes is high, mainly because of the relative price difference compared to other animal products and because of low switching costs.



Graph 4. 2 Relative price difference indexed to salmon. Source: Own creation/ IMF.

4.2.5 Rivalry among existing cmpetitores

Rivalry amongst existing competitors can take many familiar forms, such as price discounting and product introduction. High rivalry limits the profitability, which is well known within microeconomics. It's possible to measure the degree of rivalry based on its *intensity* and on which *basis and dimensions* they compete. The intensity of the rivalry is

greater if: 1) there are numerous competitors and they are equal in size and power, 2) Industry growth is low, 3) exit barriers are high, 4) rivals are highly committed to the business (Porter, 2008, p. 9). We will start by analyzing the intensity on which companies compete.

As mentioned earlier in section 4.2, the salmon farming industry is highly concentrated and dominated by few big companies. Just the three companies analyzed in this thesis had over 40% of the harvested volume in Norway in 2014, and the 10 biggest companies had over 70 %. In the UK North-America and Chile, the industry is even more concentrated (Marine Harvest, 2015a, p. 27). The industry has also experienced high growth. Supply of Atlantic salmon has increased by 428% since 1994, which translates into 9% annual growth. Between 2004 and 2014 the annual growth has been 6%, and the growth is expected to stabilize at around 3% annually. The reason for this downwards trend is because of biological boundaries, and in Norway the general consensus is that the largest companies is nearing their MAB (Marine harvest, 2015, p. 18).

As seen in the financial analysis in section 3, the salmon farming industry is highly profitable. Industry participation also requires substantial financial investments in very specialized operating equipment, which not easily could be used in any other industry. The exit barriers are therefore high. It also seems as if most companies are highly committed to their business. Many of these companies started out as family businesses, and even though many have been subjects to M&A through the years, we still think this plays a noticeable factor. The fishing industry in general has a long history in Norway, and is part of the country's tradition and backbone. Some owners may have a strong attachment to their business, and therefore find it hard to let them go.

Overall we conclude that the intensity of rivalry is moderately high. The industry is very concentrated and dominated by big companies, and the industry is expected to grow, High profitability and exit barriers keeps the intensity up.

Rivalry among existing competitors can also be measured through the *basis and dimensions* on which the companies compete. Whether they compete on the same dimensions can have major influence on profitability. Competition mainly based on price can be especially destructive because it directly transfers profit from the industry to its customers. Price competition is likely to occur if: 1) products sold are standardized or identical and few

switching costs, 2) there are high fixed costs and marginal costs are low, and 3) efficiency depends on large scale investments (Porter, 2008, p. 9).

As discussed earlier in section 4.2, salmon products can be characterized as fairly standardized (whole salmon and lightly processed salon such as smoked or fileted salmon) and with low switching cost. At the same time the different companies do achieve different sales premiums, as seen in section 4.1, much as a result of differentiated products through VAP activities. The industry is also characterized by economic of scale.

One should think that price competition would be intense and characterized by a large number of competitors because the industry is so profitable. But because of regulatory limitations on MAB (and therefore supply) and high demand, the prices is keep relatively high. The industry is more so characterized by companies trying to differentiate themselves through VAP and cost-efficiency.

Overall we conclude that the industry has moderately high rivalry among existing competitors.

4.2.6 Summary Porters Five Forces

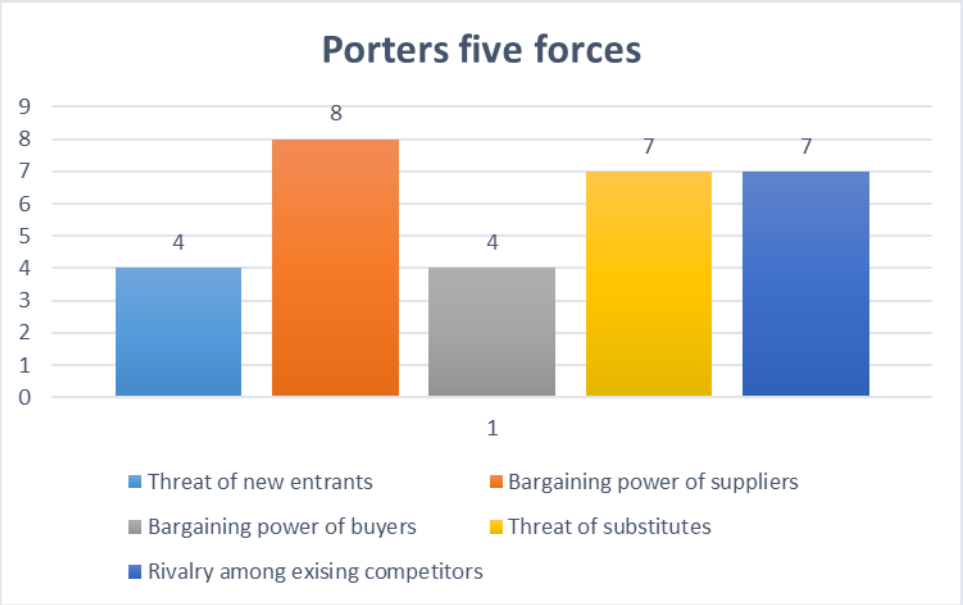


Figure 4. 1 Summary Porters Five Forces. Source: Own creation.

It is important to keep in mind that by threat of new entrants we think of new competitors entering the farming phase of the salmon farming industry. And by threat of substitutes we mean threat from other protein sources outside of the salmon farming industry.

To make the summary intuitive, we have given the different forces a value from a scale from 1-10. A value of 1 indicates a very low threat level, and 10 indicates a very high threat level. As we can see from figure 4.1, the highest threat level comes from the industry's feed supplier. Feed producers affect the salmon farming companies cost structure by transferring the risk of increased cost over to the salmon farming companies by using cost plus margin contracts.

4.3 PESTEL

In the following analysis we will look at the macro factors that affect the industry and the company as a whole. Following the internal- (VRIO) and external- (Porter) analysis, the PESTEL analysis gives a broader scope of the competitive factors. The analysis is an extension of the external analysis and another tool we use in trying to understand the business environment of the industry. The PESTEL framework is illustrated in figure 4.2 below.

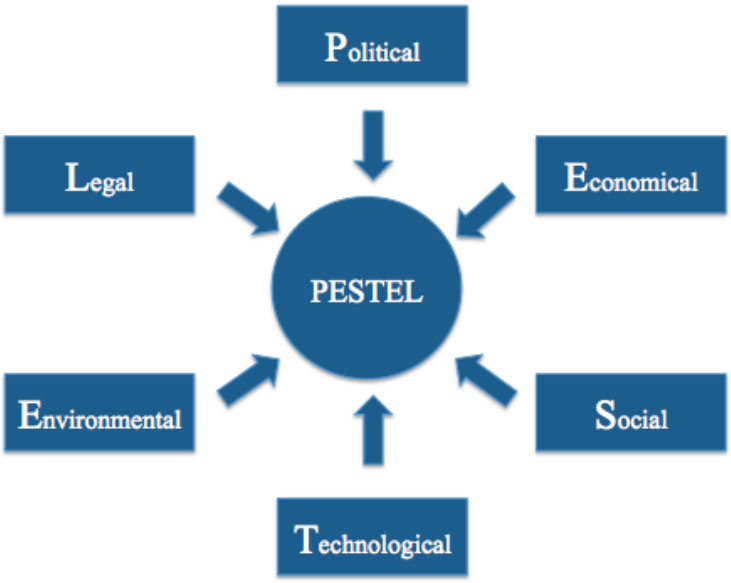


Figure 4. 2 PESTEL framework. Source: Own creation.

4.3.1 Political and Legal factors

First, we look at the *Political* factors that have an important impact on the salmon farming industry due to legislations and operational restrictions. We have also chosen to include *Legal* factors in this sub-chapter, especially regarding MAB and Licenses since this seemed

more natural after reviewing the chapter. Since GSF is a multinational company they are constantly dependent of the government's actions in regard to legislations and especially considering restrictions on export and import.

MAB and Licenses

The new plan that was published 20th of March 2015 by the Norwegian government, says that the authorities want to hand out new licenses and also increase the MAB on existing licenses in the years to come (Meld. St. 16 (2014-2015) p. 3). Total farming production is expected to fivefold within 2050. This estimate is based on an implementing plan spanning over 40 years (from 2010) and it assume that innovation will ensure less diseases and a decrease in other production cycle challenges (Meld. St. 16 (2014-2015) p. 15). It was confirmed by the Norwegian Government on June 18th 2015 that all Norwegian salmon farmers will be offered to increase production capacity (MAB) by 5% (Fondsfinans, 2016, p. 12). This is all very promising, but to follow up the increase in MAB each company must be able to reduce salmon lice levels to 0,1 lice per salmon farmed, on average, which is called "the traffic light system" (Regjeringen, 2015). This has later been increased to 0,2 lice per salmon (FondsFinans, 2016, p. 13). Since 2000 it has been three rounds with new distributions of licenses. In 2002 the licenses were contributed based on local activity, cooperation, and companies with female owners was preferred. In 2009, companies that were willing to facilitate certain ways of processing were prioritized. Also in 2013, the scope had changed and players that could be linked to pro-environmental operations was prioritized (Meld. St. 16 (2014-2015) p. 3). As we mentioned previously in our Porter analysis in section 4.2, there are some companies that focus more on R&D considering the environment that could have a competitive advantage regarding distribution of licenses in the future.

Exports and imports

Export to other markets account for most of the revenue from salmon farming in Norway. GSF is exporting most of their fish to the European market and Asia. In particular, the European Union that is accountable for 55% of the revenues (Grieg, 2016b, p. 4). Norway has established several trade agreements with the European Union, which naturally can be explained by looking at the three main countries Norway exports to (in total exports): 22% to the UK, 18% to Germany, 10% to Netherland (Trading economics, 2016). The European markets are considered stable and assigned low risk when it comes to political stability. History has shown that there is greater politically instability linked to other markets. The

latest incident was the Russian ban of all Norwegian salmon that occurred over night the 7th of August 2014. To clarify the massive shock it had on the Norwegian salmon industry; Russia stood for 11% of Norwegian salmon export in 2013 (Meld. St. 16 (2014-2015) p. 28). See appendix 4.3 for an overview of how it affected the biggest Norwegian Salmon Producers in 2014. Also, the aftershocks of the Nobel Peace Prize from 2010 to the Chinese prisoner Liu Xiaobo were high. Norwegian salmon imports were estimated to 90% of the total market and has now decreased to approximately 1% percent (E24, 2015). This indicates that political bans have a great impact on the salmon farming industry and are highly unpredictable to foresee.

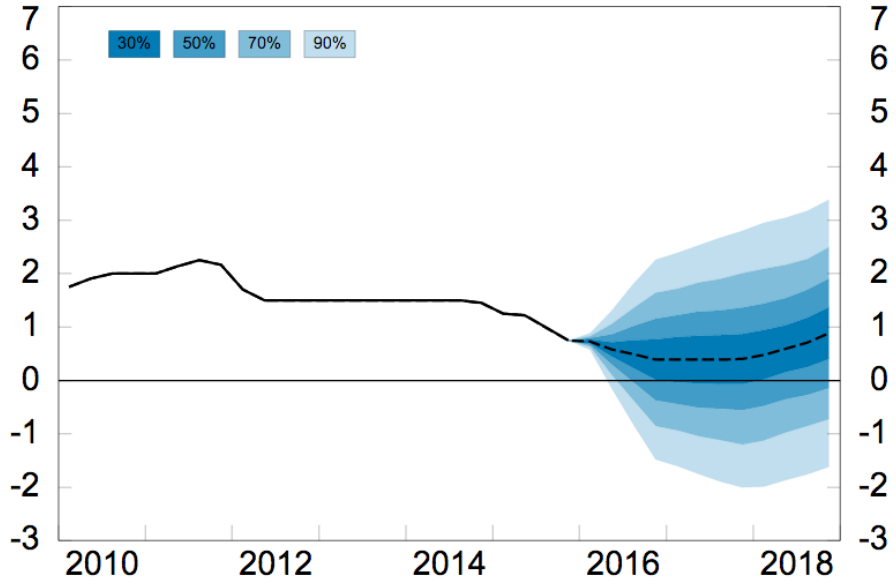
4.3.2 Economical factors

Moving on in our analysis we assess the *Economical* factors within the framework. These are factors that business environment and effect the profitability of the industry.

Macroeconomic factors

We begin by looking at real GDP growth to allocate the macro factors related to economy. The growth in real GDP is estimated to stabilize around 1,8 percent in the European countries in the future, that is the most important export market for GSF (Knoema, 2016). The Norwegian Central Bank expects the total growth in GDP among trading partners to gradually pick up from 2,2% to 2,4% in short-to-middle term (2-3 years) (Norges Bank, 2015, p. 7). In the short term public spending will increase due to the economic consequences of refugee flows to Europe. The US is also expected to increase growth in the future due to increase in employment, and because of a positive outlook from industrial production (ISM, 2016).

Considering the economic outlook, we have mainly focused on the Norwegian Central Banks estimates for the future development. Since their main instrument to affect the economy is through monetary policy and the key policy rate, we will take a more detailed look at this development (Norges Bank, 2016a). Norway, which is considered a small economy with floating interest rates, has felt the effect of falling oil prices since the end of 2014. This rapid change in the price (supply driven) has impacted many companies within this sector. In contrary, the salmon farming industry has experienced a rapid growth in spot prices (iLaks, 2016). By using the Loss function, the Norwegian Central Bank has decided to revise the key rate outlook downwards, as seen in graph 4.3.



Graph 4 3 Key Policy rate, The Norwegian Central Bank. Source: The Norwegian Central Bank.

This has resulted in a key interest rate that is at an all-time low, which also means that companies can borrow money at an attractive interest rate. This could make future R&D project more realistic to undertake because of attractive financing. Looking at figure 4.3, it is likely that the key rate will continue to stay at a level below 1% until the end of 2018. It seems reasonable to assume that debt financing from Norwegian banks will be relative attractive in the years to come, and especially for GSF and other salmon farming companies. That being said, the general trend in the industry is to reducing debt financing, as discussed in section 3.3.1.

Exchange rates and contracts

The NOK has decreased rapidly compared to other currencies since the beginning of the decrease in oil prices. This has stimulated the demand for salmon, especially in European and USD markets. GSF and the salmon farming industry are constantly exposed to foreign exchange risks. The group is operating internationally, but 59% of their operating revenues were denominated in NOK in 2014 while 31% was denominated in GBP from the operations on Shetland (GSF, 2015, p. 53). On the other hand, it is also common practice within industries that operates with currency risk to hedge this risk. GSF uses forward contracts to manage this risk. It is likely to assume that this is a prolonging trend that will sustain in the short-to-middle term.

4.3.3 Social Factors

There are many *social* factors that can affect the demand for GSFs products. In this section we will focus on demographical and health trends.

Demographical trends

The UN estimates that the world's population will reach 9,7 billion in 2050, and 11,2 billion by 2100 (United Nations, 2015, p. 1). This would mean an increase in need for protein by 40%, within 2050, assuming per capita consumption stays constant. Only 6,5% of the worlds protein consumption comes from fish. With water covering 70% of the worlds surface. there is obviously big potential for expanded protein production at sea (Marine Harvest, 2015a, p. 6). The big question is how this can be done efficiently, and probably most important, how this can be done in a sustainable way.

Behind these population number however, it's important to notice where the population changes are expected to be most aggressive. Not surprisingly, the population growth is expected to be highest in less develop regions of the world. In other words, not salmon farmer's usual markets. In more developed regions, such as Europe and North-America, the population growth is expected to stagnate and in some cases be negative. This could potentially be a challenge in the very long term. There is still big potential in regions where they already operate, so in the short-to-middle term it should not be a problem.

Health trends

Atlantic salmon is considered a very healthy source of food, with high concentration of long chain omega-3 fatty acids, very high quality protein, and several vitamins and minerals such as vitamin A and D, phosphorus, magnesium (Marine Harvest, 2015a, p. 13). In today's society, there is an increasing focus on healthy diets because of the known fact that people today are more likely to struggle with for example obesity because of unhealthy diets and less physical activity. The Norwegian government for example, encourage people to eat more fish. They think people should eat fish at least 2-3 times a week, or what equals a minimum of 400 grams. At least half of this amount should consist of fatty fish, such as salmon or trout (Helsenorge, 2016). This is positive for future demand of salmon.

4.3.4 Technological factors

The *technological* factors in the salmon farming industry are evident through the different company's research and development programs. As mentioned in section 2 and in section 4.3.1, the salmon farming industry faces strict regulation. Most of these regulation has to do with sustainable growth, and therefore more and more of the companies R&D has to do with these challenges. It's a well-known fact the industry has had problems when it comes to challenges such as fish health, sea lice control and escape control (Grieg seafood, 2015a, p. 19). However, the Norwegian government has given room for growth in the years to come, given certain requirements such as lice control.

Research and development

Research and development programs are important for future growth and for improvements in efficiency. There is a clear trend in the salmon farming industry that most of this research has in some way to do with biological challenges such as sea lice control and fish health in general. This is clear from different company's materiality matrixes (Grieg seafood, 2015a, p. 19. Marine Harvest, 2015b, p. 22). Biological challenges such as fish diseases has been, and still is a big problem in the industry, and is something we will look at in more detail later in the PESTEL-analysis. Some of this research in fish health is done through the Norwegian fishery and aquaculture research fund (Fiskeri- Og Havbruksnæringens Forskningsfond), which is fully financed by the industry themselves though an R&D fee of 0,03% of their overseas revenue (FHF, 2016). This is meant to benefit the industry as a whole, and to take some of the burden of R&D effort off the companies themselves. It's difficult for companies to properly appropriate the economic benefits of their R&D efforts, which is the main reason why FHF where established (Asche, F., Tveterås, R., 2011, p. 108-109).

Other aspects of the R&D programs have to do with making production more efficient and cost effective. These results are often easy for other companies to copy is some way or another, and there is also difficult to get patented protection (Asche, F., Tveterås, R., 2011, p. 124). Many new technologies are also purchased externally, or developed in association with FHF, and is therefore available for the entire Norwegian industry. It's therefore crucial for companies in the industry to adopt and continuously improve new technology to get some sort of competitive advantage (Asche, F., Tveterås, R., 2011, p. 124).

As mentioned in section 4.1, there is some interesting new innovations in the works that could be important in the future. MHG have a project involving enclosed farms which can help control diseases and sea lice, and SALM has their offshore sea-farming project.

4.3.5 Enviromental factores

Farmed salmon spend most of their life in the sea, outside of the more controlled environment of egg and smolt farms. We will therefore in this segment focus most on *environmental* factors affecting salmon production at sea.

Seawater temperature

Because salmon is cold-blooded animals, the sea water temperature plays an important role for their growth rate (Marine Harvest, 2015a, p. 32). Variation in sea water temperature is a factor outside of salmon farming company's control, and can vary much throughout the year. The ideal temperature for Atlantic salmon is between 8-14 degrees Celsius. For countries in the Northern hemisphere (Norway, Scottland, Irland), the temperature is low in the beginning and ending of the year (winter), and high in autumn and summer, and can vary with as much as 10 degrees. In Chile, the water temperature is much more stable, and the average temperature is 12 degrees. This is Chiles natural competitive advantage compared to other production regions, and production time has historically been shorter for this reason (Marine Harvest, 2015a, p. 32).

Because of global warming, the average seawater temperature in countries such as Norway and UK has gone up, and has mad production easier. At the same time, it's important that temperatures don't excide 14 degrees, because this reduces the salmon's appetite which reduces their growth rate (Hansen, T., 2011, p. 1).

Diseases

As the production of Atlantic salmon increased through the years, the number of disease outbreaks became more frequent. In the 1980's this became an increasingly serious problem, which has a big impact on mortality rates and livestock. This is a problem that has followed the industry since (Asche, F., et al., 2010, p. 406). Some vaccines have been developed, and are widely used to reduce the risk of heath challenges. These vaccines have made effective control of bacterial health challenges easier (Marine Harvest, 2015a, p. 63). Where there are lack of effective vaccines and other medicine, other measures such as zone farming,

regulation of distances between farms and slaughter of fish is necessary (Asche, F., et al., 2010, p. 406).

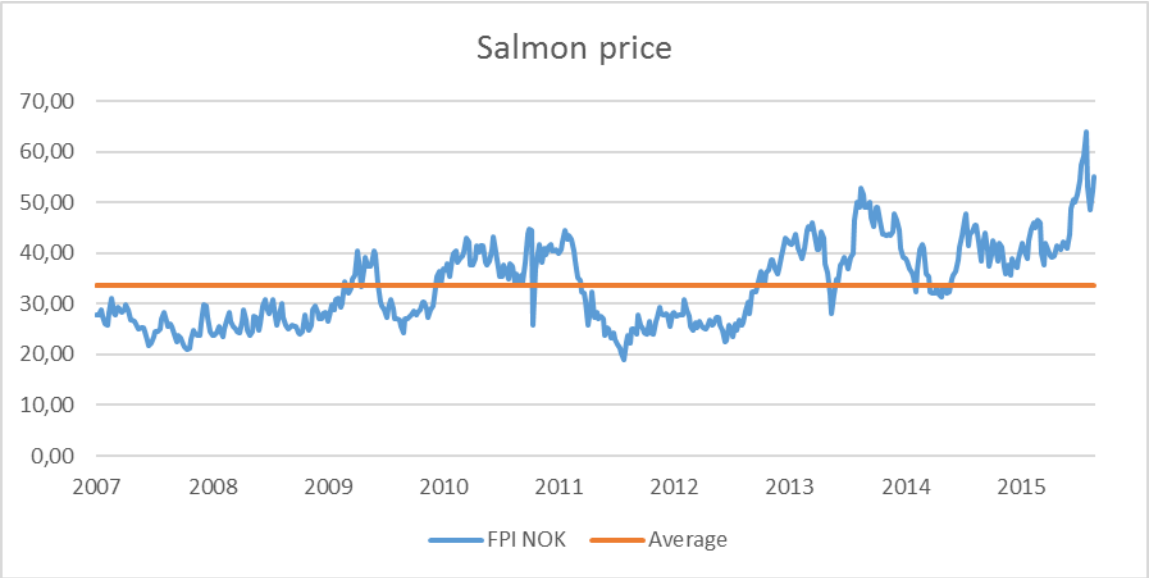
One of the more common diseases is Pancreas Disease (PD). This is a disease that where discovered in the 1980's, and has since been a frequent problem. Normally, the mortality rate for this kind of disease is 5-15%, but there has been reported mortality rates as high as 80% in some cases (Jansen, M.D., et al., 2015, p. 11). Today there is a vaccination available, which can be used where PD represents a risk (Marine Harvest, 2015a, p. 64).

Another common disease is Infectious Salmon Anaemia (ISA). Many of the worst outbreaks of salmon diseases are related to ISA, and the one that's considered the worst in terms of production loss is the outbreak in the Faroe Islands in 2003 and in Chile in 2009. In the Faroe Islands production where reduces to one fifth, and in Chile it went down almost 70%. In absolute terms the Chilean crises where much worse than the one in the Faroe Island, because the Chilean industry is much bigger (Asche, F., et al., 2010, p. 406-408).

In the later years, there has been a general stabilisation of mortality in Norway, Scotland and Canada, which foremost has been because of good husbandry, management practices and vaccination (Marine Harvest, 2015a, p. 65).

4.4 Salmon price

As mentioned earlier in this thesis, GSF revenue is highly affected by changes in the salmon price. And as we can see from graph 4.3, the historical salmon price has varied a lot through the years. Not surprisingly, the salmon price is highly dependent on changes in supply and demand, factors that are difficult for salmon farming companies to adjust to in the short term because of the industry's long production cycle (Marine Harvest, 2015a, p. 24). Supply is therefore inelastic in the short term, and at the same time demand is somewhat seasonal. This affects the price volatility in the market (Marine Harvest, 2015a, p. 24).



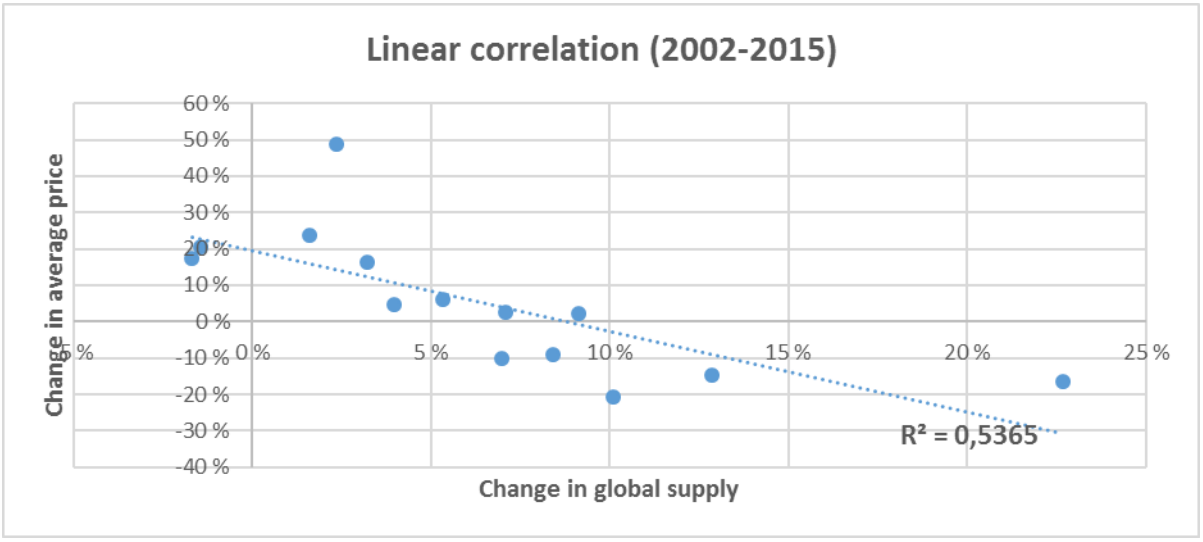
Graph 4 4 Historical salmon price FPI. Source: Own creation/ Fish Pool index

The graph above is compiled using historical spot prices from the Fish Poll Index (FPI). This is a reference price reflecting the actual spot price of fresh Atlantic salmon, and is therefore a synthetic market price (Fish Poll Index, 2016b). FPI was earlier composed of three different elements: NASDAQ Salmon Index (Export selling price), Fish Pool European Buyers Index (Large purchasers purchase price), and Statistics Norway customs statistics (SSB). From 2015 the FPI uses Nasdaq price SUP3-6 kg as reference price (Fish Poll Index, 2016b). As mentioned in section 4.2, the growth rate in the salmon farming industry (at least in Norway) has gone down in later years because biological boundaries are being pushed. The last few years the demand growth has been higher then supply growth, which has led to salmon prices being higher than average (Marine Harvest, 2015a, p. 18).

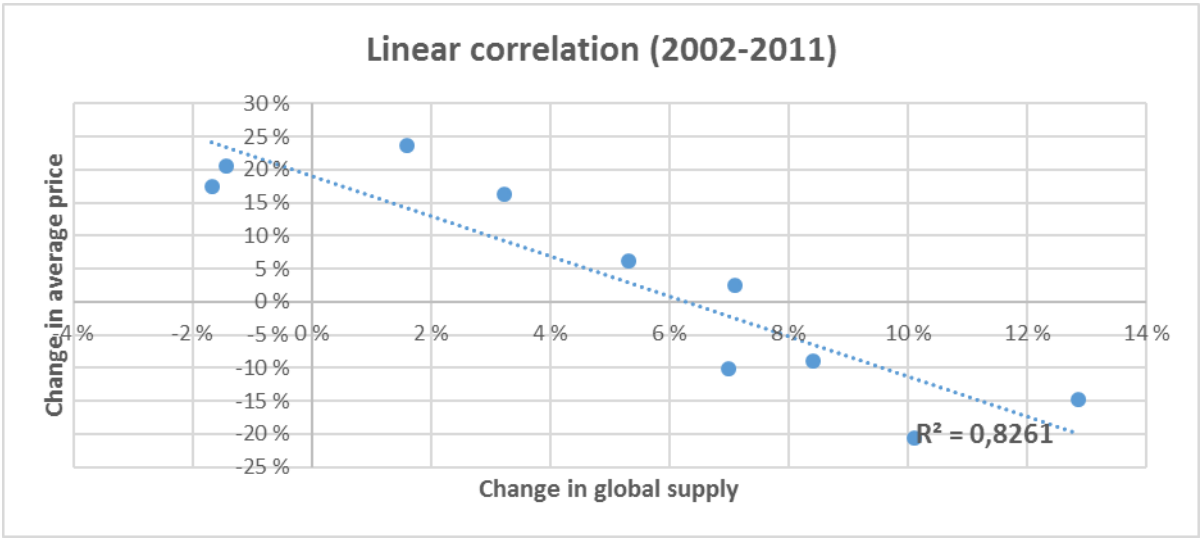
The future salmon price is crustal when it comes to valuating GSF later in the thesis. So in this section we will take a closer look at factors affecting future supply and demand, which is important inputs going forwards.

4.4.1 Supply

Supply growth has historically been the main driver behind the salmon price volatility (Marine Harvest, 2015a, p. 24). Graph 4.5 shows the linear correlation between change in global supply and change in the average salmon price from 2002-2015. Since the Fishpool index doesn't have historical prices further back than 2006, we used prices from SSB for 2002-2006 (SSB, 2016).



Graph 4. 5 Change in supply and price (2002-2015). Source: Own creation/ Kontali Analyse and Nordea Markets.



Graph 4. 6 Change in supply and price (2002-2011). Source: Own creation/ Kontali Analyse and Pareto.

As we can see from graph 4.5, the correlation between the change in supply and change in the salmon price between 2002-2015 has an explanatory power (R^2) of 53%. However, the explanatory power between 2002-2011 is 83%. The reason for the drop in explanatory power in later years, is because of the somewhat unusual market conditions, with very high growth in demand and stagnating growth in supply.

The CAGR in salmon supply has been 9% since 1994, with a declining CAGR of 6% in the period 2004-2014 (Marine Harvest, 2015a, p. 18). Annual supply growth rate has varied between -2% and 23%, and the annual change in salmon price has varied between -21% and

49%. Nordea Markets has in association with Kontali analyse estimated the following development in supply growth (Nordea Markets, 2016, p. 3).

1000 tonns	2012	2013	2014	2015	2016E	2017E	2018E
Norway	1 183	1 144	1 198	1 239	1 177	1 202	1 217
Others	248	243	268	261	275	283	279
Europe	**1 431**	**1 387**	**1 466**	**1 500**	**1 452**	**1 485**	**1 496**
Growth	16,0 %	-3,1 %	5,7 %	2,3 %	-3,2 %	2,3 %	0,7 %
Chile	364	470	583	590	494	415	437
Others	208	193	188	236	223	233	234
Total others	**572**	**663**	**771**	**826**	**717**	**648**	**671**
Growth	48,0 %	15,9 %	16,3 %	7,1 %	-13,2 %	-9,6 %	3,5 %
Total Global supply	2 003	2 050	2 237	2 326	2 169	2 133	2 167
Growth	24,0 %	2,3 %	9,1 %	4,0 %	-6,7 %	-1,7 %	1,6 %

Table 4. 5 Global salmon supply 2012-2017E. Source: Own creation/ Kontali Analyse and Nordea Markets.

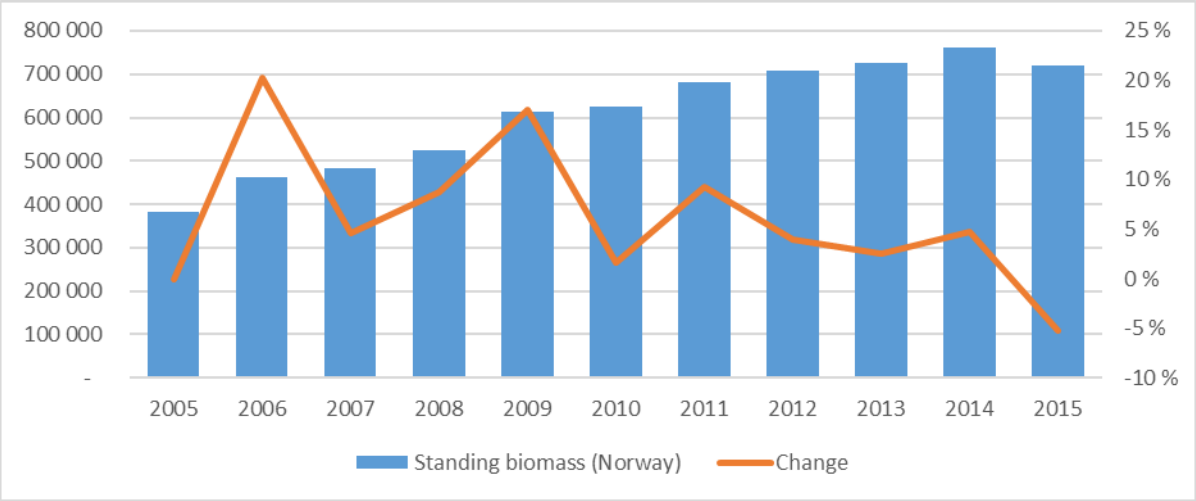
The reason for diminishing CAGR is, as mentioned earlier, because the industry is pushing biological boundaries. Process, technology and product innovation is necessary. Because of the strong market at the end of 2015, many companies decided to harvest early and "cash in". For this reason, there are few salmon ready for harvest at the beginning of 2016, which we will analyze in more detail later in this section (DNB, 2016, p. 8). There have also been biological challenges related to sea lice in Norway, which could lead to limited granted production growth according to the new Norwegian Traffic-light system (Pareto, 2015, p. 8), as discussed in section 4.3.1. In February and March of 2016 Chile has been hit by a severe toxic algae-bloom, which has resulted in high mortality rates, which will affect harvested volume in 2016 (Nordea Markets, 2016, p. 1).

Along with sea water temperature, disease outbreak and vaccination, as discussed in section 4.3.4, other factors such as standing biomass, feed use/sales and smolt release can affect short-term to medium term salmon supply (Marine Harvest, 2015a, p. 67). This will be discussed in more detail in this section, and can help us make a more precise forecast later in the thesis.

Standing biomass (Norway)

Standing biomass, fish currently in the sea, over 4 kg is the best indication for short-term harvested volume (Marine harvest, 2015a, p. 67). If a salmon company has big volume of standing biomass, it's a relatively short process to get these salmon on the market. In this

analysis we had difficulty finding accurate data for other regions then Norway. This is of course a weakness in the analysis, but at the same time Norway is by far the biggest production region in the world and should therefore give us a good approximate indication.

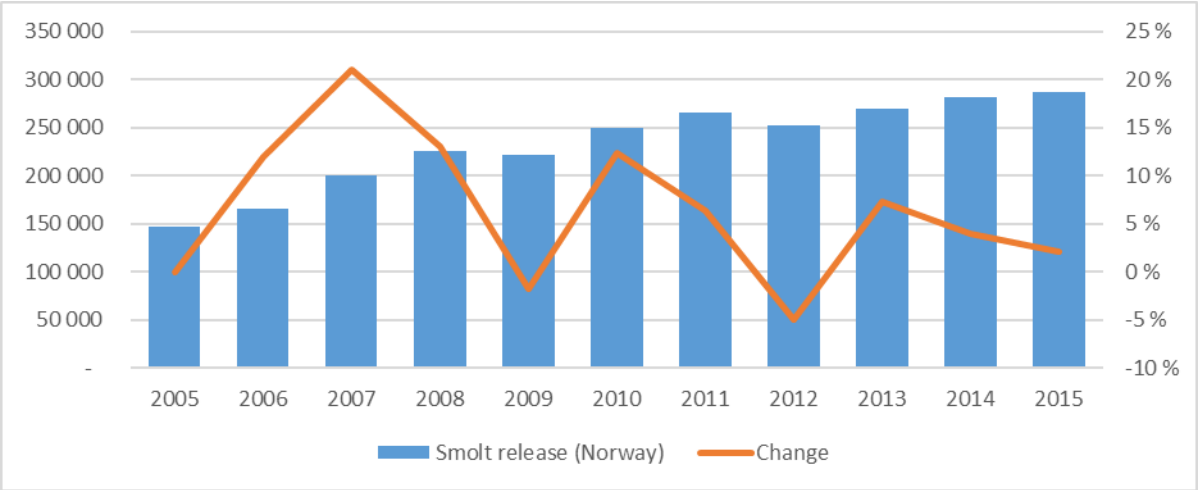


Graph 4 7 Standing biomass in Norway. Source: Own creation/ Fiskeridirektoratet

Graph 4.7 indicates all standing biomass, not just biomass over 4 kg. As we can see, the overall standing biomass has gone up in the period, expect from 2015 where it went down. We can also see that the annual growth rate has varied in the same period. The growth was highest in 2006 and 2009, and has been reality low the last three years and negative in 2015. Some of the variations is because sea water temperatures, disease outbreaks and the fact that companies are pushing the limits of their MAB (as discussed in section 4.1), but at large companies regulate their biomass according to market conditions. We can see some resemblance with the price development above. Low growth in standing biomass in general can indicate reduced supply, which again can result in higher prices. This is something we have seen the last four years. In 2015 the market was very strong, which resulted in negative growth in standing biomass. Because of high prices, many companies decided to harvest and sell during the fall (DNB, 2016, p. 8). This was also because of some problems related to sea lice.

Smolt release

As for standing biomass, we only found data for Norway. It's not ideal, but can give us a good approximate indication. It's also important to note that the values quoted in graph 4.8 is number of smolt released during the year, and not smolt in kg.

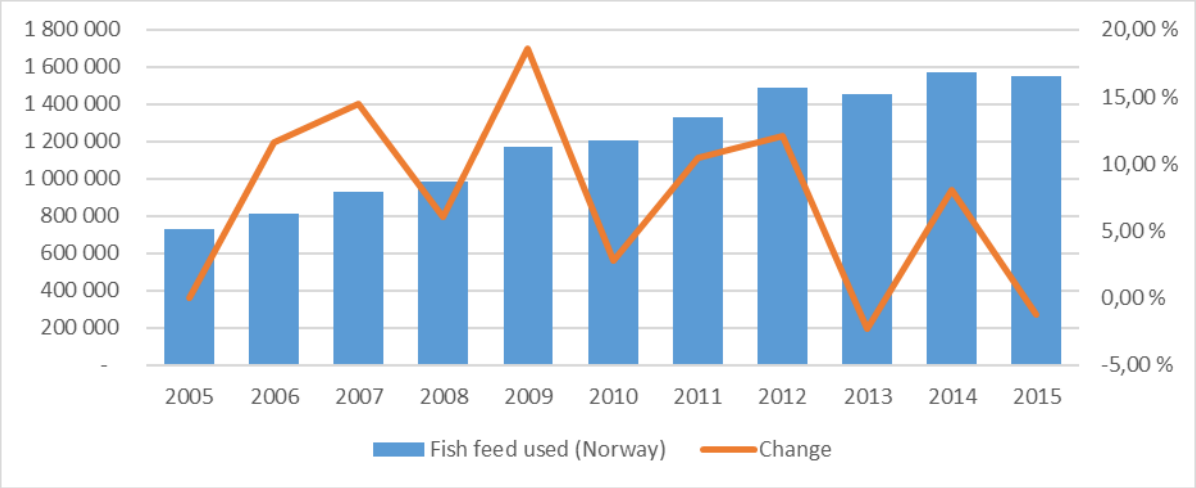


Graph 4. 8 Smolt release in Norway. Source: Own creation/ Fiskeridirektortet.

Trough graph 4.8 we can see a clear two-year cycle. This is because of the salmon industry's production cycle as previously discussed. This graph also has to be seen in relation to graph 4.7. In years with large smolt release, we would expect to see high increase in biomass approximately two years later. In 2007 for example there was a large increase in smolt release, which resulted in a high increase in standing biomass in 2009. We can also clearly see that growth in smolt release has diminished in later years, mostly because of strict MAB regulation. In 2013, smolt release where low, which resulted in a low standing biomass in 2015. Smolt release has also been fairly low in 2014 and in 2015, which would result in expected low supply the next two years. This supports a diminishing supply growth rate, as discussed earlier in section 4.4.1.

However, most companies these days' focus more on land-based farming and post-smolt production (as discussed in section 4.1), which will increase the size of the smolt and reduce time spent at sea. This is excepted to have a positive effect on smolt production. This will probably not affect the supply in the short term, but we could expect to see some results from 2017 and onwards. The increased smolt size means companies can increase their volume within the same license capacity.

Fish feed used



Graph 4. 9 Fish feed used in Norway. Source: Own creation/ Fiskeridirektoratet.

Graph 4.9 has to be seen in relation to graph 4.8. In years with low smolt release, companies usually have large amounts of large growing fish, that need larger amounts of feed than smaller fish do. Another important factor to remember is seawater temperature. As discussed in section 4.3.5, salmon requires less feed when sea water temperatures are high. In some years the low fish feed used could have something to do with high temperatures. This was the case in 2015, where there was a mild winter and fall (FondsFinans, 2016, p. 7). Because of low expected growth in supply the next two years, the fish feed use can be expected to stabilize a bit. As discussed earlier, most salmon farming companies are the limit of their MAB.

4.4.2 Demand

Population growth, new markets and changes

As discussed in section 4.3.3, the world's population is expected to increase dramatically within 2050 and 2100. Most of this population growth however, is going to be in less developed region such as Africa and parts of Asia. This isn't salmon farming company's biggest markets, and at the same time there are cheaper protein sources available.

Europe is by far the biggest and most important market for salmon. For this region the overall population growth is expected to be negative towards 2050 and 2100, as discussed in section 4.3.3. Never the less, the demand growth in Europe has been good the last two years, and Europe has been able to absorb huge supply increases after the collapse in Russia. The general consensus in the market is a decline in overall supply, and competition from high

paying markets in Asia and U.S could mean less supply to European markets in the short-to-middle term (Pareto, 2015, p. 4-5). Demand is also expected to be strong in the near future, which should support high prices (FondsFinans, 2016, p. 3).

Population growth in emerging countries is expected to keep up long term demand. With the emergence of a growing middle class in BRIC countries (Brazil, Russia, India and China), the potential of expanding to growing markets is present.

At the moment though, the short term development in BRIC countries has been difficult. The last couple of years there has been an import band on European and Norwegian fish into Russia, and coupled with a weak currency there has been a negative development in this region (Pareto, 2015, p. 6). The easing of restrictions on import from Norway to Belarus for processing and re-export into Russia has however helped this situation. Still, the Russian band is expected to be a long term problem (FondsFinans, 2016, p. 3). The Brazilian market is still holding up, despite a very weak currency (Pareto, 2015, p. 6).

Despite these short-to-middle term problems, the long term benefits from emerging markets is expected to affect future demand in a positive way. It's also clear that the potential from these markets are huge, considering the per capita consumption for salmon in China and Brazil for example are way below the consumption level in Scandinavia and other European countries (Pareto, 2015, p. 5).

Product development

Product development is also an important factor that affects demand for salmon. As discussed in more detail in section 4.1, VAP is becoming more and more important. The market is still dominated by fresh and smoked salmon, but new ways of delivering these kinds of products is evolving. Lightly processed fresh fillet packages are becoming more and more dominant, whilst smoked and frozen salmon are declining a little bit because of changing consumer behaviour.

4.4.3 Conclusion supply and demand

The analysis above shows that the short-term growth in supply will be low/negative, due to Norwegian restrictions on MAB and because of the very difficult biological situation in the beginning of 2016 in Chile. We also found a diminishing standing biomass in later years, and especially in 2015 due to good market conditions and sea lice challenges. Supply in

medium-to-long term will depend heavily on the new Norwegian Traffic-light system. This system depends on sea lice control, which is expected to become less of a problem in the future due to innovation in farming processes and innovation in medicine and vaccination (DNB Markets, 2016, p. 6). As mentioned in section 4.1, process innovation regarding larger smolt and post-smolt production is expected to have a positive impact on supply in the medium-to-long term, but we won't see the full effect of this before 2017/2018 and after due to the long production cycle.

Overall we think there are significant indications that supply growth will be negative in 2016, and that it will increase a little in 2017 and 2018.

Supply estimates	2016E	2017E	2018E	2019E	2020E
Our estimates	-3 %	1 %	3 %	5 %	6 %

Table 4. 6 Supply estimates. Source: Own creation.

Demand has been fairly stable over the last decade, and is expected to hold up because of population growth, discovery of new markets, product development and the fact that NOK is weak at the moment. A weak NOK should result in high demand, at least in the short term. The difficult political situation in Russia could be a long term problem, but the easing of restrictions into Belarus for processing and re-exportations has helped. The U.S market is also expected to grow in the near future due to high catch-up potential (Nordea Markets, 2016, p. 1-3).

Overall we think there are sufficient indications that demand will keep rising at a steady pace in the future.

Demand estimates	2016E	2017E	2018E	2019E	2020E
Our estimates	6 %	5 %	5 %	5 %	5 %

Table 4 7 Demand estimates. Source: Own creation.

As we can see we estimate demand being higher than supply at least until 2019, which should have a positive impact on the salmon price in the short-to-medium term. Within 2-3 years we expect salmon supply to pick up pace, which should result in a stabilization in prices.

4.5 SWOT analysis

	Revenue drivers	Harvest volumes	Cost drivers
S	• High Bariers to entry • Limited supply growth of salmon (spot price) • High future expected demand for salmon •High growth in revenue	• Economics of scale (few players, big opreations) • Financially healthy, can undertake investments • Fresh water recycling, big smolt and post smolt. Less time in the sea.	• Owns 60 % of Ocean Quality, strategic aliance • Lowest cost per kilo in production in later years
W	• Long production cycle • Cyclical industry • Dependent on the underlying spot price of salmon • Lowest sales primium compared to peers.	• Long production cycle • Limited number of licenses issued • Low capacity utilization • High risk for potential diseases	• Feed suppliers have high bargaing power • High salaries in Norway • Low capacity utilization • Big uncertainties considering production in Shetland
O	• BC is more attractive due to trouble in Chile • Growing population and demand for protein • Potential for expansion to new markets • Potential for increased sales primium	• New traffic light system and growth in MAB • New acquisition of smaller competiors • New implementation that aim to improve utilization • On land production • R&D regarding productionmethods	• More integrated value chain • New vaccines in the market • Own feed production • Big potential for better cost efficiency (already in motion)
T	• Trade restrictions in historilcally large markets • Sealice outbreak • Unforseen decrease in spot prices (due to macro effects: currency, supply, demand, production)	• Environmental and biological risks can increase with global warming and vacsines • Disease outbreak • Water temperature • Stricter regulations • MHG and SALM are ahed with their R&D programs regarding production • Hostile takeover - MHG owns 25% of GSF	• Feed prices can go up as a result of increased raw material prices and the suppliers power • Increase in demand for vacines beacuse of disease outbreak, esspeially in Norway, can increase costs • The possibilty of closing operattions in Shetland

5. Forecasting

Before we start forecasting, we need to decide on the time period of our forecast and how detailed it should be before we use the perpetuity formula. A too short time period will typically result in an undervaluation, unless one has an exact assumption on the long term growth of the company. At the same time there are also challenges in regard to using a long time period as well, such as forecasting individual line items 10-15 years at a time (Koller et al., 2010, p. 188).

We have therefore decided to make an explicit forecast of every line item 6 years ahead in time, and the 7^{Th} will be the terminal value where we assume GSF have reached it steady state. GSF (and other salmon farming companies) find themselves in a period of rapid changes in salmon farming processes, such as larger smolt-production and so on, which can have a significant impact in this period.

We will spilt the analysis into short-term, medium-term and long term. Short-term will mean the next two years (2016-2017), medium-term will be the next four years (2018-2021) and long-term will be the final terminal year where they have reached steady state.

5.1 Income statement

We will start by forecasting he entire income statement. The first and most crucial step is to determine future revenue, since almost every line item will rely directly or indirectly on revenue (Koller et al. 2010, p. 190). In the above analysis we have found that revenue is highly and mostly dependent on salmon prices, harvested volume and sales premiums. Since determining future revenue is the most crucial part of forecasting the income statement, most of this section will be dedicated to this challenge.

5.1.1 Salmon price forecasting

As we found in section 3, GSFs performance is highly dependent on the salmon price in the market. It is therefore crucial that we can make a realistic estimate of the future salmon price for the quality of the valuation. With this in mind, it's important to find out which factors that affect the salmon price the most. As mention earlier in this thesis there are of course many different factors which affect the salmon price, such as supply, demand, globalisation,

presence of sales contracts, market flexibility, quality, diseases and so on (Marine Harvest, 2015a, p. 24). As supply and demand affect the salmon price the most, we have made a regression analysis to identify the relationship between the salmon price, supply and demand. It seems to be the general consensus within the industry, and people analysing the industry, that supply and demand affect the salmon price the most (Marine Harvest, 2015a, p. 24).

For this reason, we used historical global supply and demand as explanatory variables in our regression. Finding historical global supply was relatively unchallenging, and the information was gathered from a collection of sources within the industry. Demand was more challenging to find good reliable data. Here we gathered data from different reliable sources, and used this as a proxy for historical demand. The problem with demand is that it's fairly normal to use historical consumption as a proxy for demand, which isn't necessarily the best way of describing overall demand. It is in general more difficult to gather information about demand compared with supply, and is acknowledged as a potential weakness in the regression analysis.

We have also made a more general forecast based on findings from the strategic analysis in section 4, and what different analysts and Fishpool's estimations of forward prices will be. The final future salmon price will be a weighted average of the different findings from this section.

Regression analysis

As mentioned above, we have used data for historical demand growth collected from credible sources within this field as a proxy for actual demand. This data makes it possible for us to make a linear regression using growth in historical global supply and demand as independent variables and historical change in salmon price as the dependent variable (data can be found in appendix 5.1). In this way we have made a simple pricing model which we can use for forecasting future salmon prices based on assumptions on future change in global supply and demand as inputs in the model. The results from the regression analysis can be found in table 5.1 below.

R-Squard	0,664	
Variable	Coefficients	P-value
Intercept	0,040	0,665
Global supply	-1,642	0,020
Global demand	1,157	0,065

Table 5 1 Supply and demand regression output. Source: Own creation, Kontali analyse, DNB markets.

It is important to note that this is a rough estimate, and can only be used as an approximation. The final forecasted salmon price will not entirely be determined using this result.

As we can see from table 5.1, the explanatory power, R-Squard, of the regression analysis is 66,4%. This indicates that 66,4% of the variation in the salmon price can be explained through the variation in global supply and demand. We can also see that the explanatory variables move in the direction one would expect. If there were a 1% increase in global supply, the salmon price would decrease by 1,642%. And if there were a 1% increase in demand, there would be a 1,157% increase in price. Both explanatory variables are significant at a 10 % level, as seen by the P-values, but global demand is slightly over the 5% significant level. Global supply however is clearly significant at 5% level.

The intercept of 0,04 would indicate that if there were no change in global supply and demand, the salmon price would increase by 4%. This would suggest that supply has a stronger influence on price that demand, which was expected. On the other hand, the general result that the price would increase by that much without any changes in global supply and demand is a little strange. However, the P-value is so high that this result is insignificant on any level. It would seem that there is a linear relationship between the change in salmon price and change in global supply. The following function can be derived, and will be used to forecast future salmon prices

$$\Delta\text{Salmon price} = 0{,}04 - 1{,}642 * \Delta\text{global supply} + 1{,}157 * \Delta\text{global demand}$$

Using this equation and out estimates for future global supply and demand from section 4.4.3, we get the following results:

Historic		Short-term		Medium-term				Long-term
Salmon price forecast	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Supply growth	4,0 %	-3,0 %	1,0 %	3,0 %	5,0 %	6,0 %	6,0 %	6,0 %
Demand growth	8,0 %	6,0 %	5,0 %	5,0 %	5,0 %	5,0 %	6,0 %	6,0 %
Salmon price growth	4,5 %	15,8 %	8,1 %	4,8 %	1,5 %	-0,1 %	1,1 %	1,1 %
Salmon price	**42,26**	**48,96**	**52,93**	**55,49**	**56,34**	**56,29**	**56,89**	**57,49**

Table 5. 2 Salmon price forecast based on regression analysis. Source: Own creation.

As we can see from table 5.2, the model shows an increase in price throughout the period. This is probably not very realistic, we will admit. But in the short-term, we think the model fits well. The reason for the increase in price is because demand growth surpasses supply growth at least until 2019. The salmon farming industry is in a period with big changes in both supply and demand, and a period with very high prices. This makes it difficult to predict prices more than 1-2 years ahead in time. Our medium to long-term price estimates does not coincide with the results from the model above, as we will discuss in more detail later in this section.

Discussion and modification of regression model

We think the regression model fits well with our conclusion from the strategic analysis in the short-term, where we expected the salmon price to increase as a result of increased demand and decreasing supply. However, the model also predicts prices to increase through the whole period, which we don't think is very realistic. We think prices will start to stabilize or even decrease a little bit in the middle to long-term. The reason why the regression model gives us increased prices in the entire period is because the intercept value is positive and a little too high. This counters the effect of the supply coefficient being higher than the demand coefficient, in absolute value.

As we discussed above, we concluded that the intercept value was not significant at any level. This means that we probably could have gotten a more realistic price forecast with a lower intercept value. We therefore tried to run the forecast again, but now changing the intercept value to 0,02.

ΔSalmon price= 0,02 – 1,642*Δglobal supply + 1,157*Δglobal demand

Historic		Short-term		Medium-term				Long-term
Salmon price forecast	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Supply growth	4,0 %	-3,0 %	1,0 %	3,0 %	5,0 %	6,0 %	6,0 %	6,0 %
Demand growth	8,0 %	6,0 %	5,0 %	5,0 %	5,0 %	5,0 %	6,0 %	6,0 %
Salmon price growth	4,5 %	13,9 %	6,1 %	2,9 %	-0,4 %	-2,1 %	-0,9 %	-0,9 %
Salmon price	**42,26**	**48,12**	**51,08**	**52,54**	**52,31**	**51,23**	**50,76**	**50,30**

Table 5. 3 Salmon price forecast using lower intercept value. Source: Own creation.

By doing this we get, what we think, is a more realistic result. Prices start to stabilize and decrease in the medium to long-term. The overall price level when the prices start to stabilize is probably still too high.

There are other aspects of our regression analysis that can be discussed in term of the validity of the model. The data for historical growth in demand are collected from various sources, and do differ slightly in some years. We however think they are credible sources, which have worked within the field for several years and have published several academic papers.

We only have 14 observations, which is too low if we want to find any realistic statistical relationship between the variables. We have only used yearly observations, because it was not possible to find weekly or monthly data (form supply and demand). The model also only takes into account change in historical supply and demand. Other factors which also affect the salmon price, such as quality, presence sales contracts, disease outbreaks, prices of substitutes and currency development (Marine Harvest, 2015a, p. 24), are not factored into the model. We think estimating these factors into our model would be beyond the scope of this thesis[16].

Despite these critical arguments against our model, we have decided to include it out forecast. We will not however base our price forecast entirely on this model.

Salmon price based on strategic analysis

In addition to the regression analysis shown above, we will also make a more general forecast based on our findings in section 4. We will also take into account the different analysts and fishpool's estimations of forward prices. We will split the analysis into short-medium-and long-term.

[16] This is a valuation thesis, not an econometrical dissertation.

Short-term (2016-2017)

In the short-term, the growth in supply is expected to be negative in 2016 and close to zero in 2017. This is mainly because of restrictions on MAB and few new licences being distributed which leads to low growth opportunities, low standing biomass at the beginning of 2016, weakened NOK and because of the biological difficulties in Chile in Q1 of 2016. This coupled with expected continued high demand for salmon, would indicate an increased/high salmon price in the short-term.

Medium-term (2018-2021)

Two-three years from now, we expect the salmon supply to increase again. We will probably see the effect of innovation in smolt production and pre-smolt production. A big factor here will be the new Norwegian traffic-light system, which is dependent on sea lice levels. Challenges regarding sea lice is also expected to be reduced as a result of new production methods and progress in medicine and vaccination. Demand growth is also expected to remain relatively high, which should result in continued high prices. Although at a lower level than in the short-term.

Long-term (2022 and onwards)

Since the salmon price is very volatile, is difficult to make reasonable assumption on long-term salmon prices. At the moment the salmon price is very high, and is expected to remain fairly high in the short-term. However, we think the price at some point will revert back to a fairly stable level relativly high above the historical average price of 33,45[17].

5.1.2 Conclusion salmon price

Table 5.4 below shows our final estimates for future salmon prices. As mentioned above, our estimated prices are a combination of the results from our regression analysis, Fish Pool's average yearly forward prices and average peer analysts' estimates[18]. As we can see, the regression model fits fairly well in the short-term, and coincides with both Fish Pool's forwards prices and analyst's estimates. We have therefore used an average of the three sources in 2016E and 2017E. From 2018 both analyst's and Fish Pool expect prices to decrease. This is a natural result of expected increased supply and expected stable growth in

[17] Average salmon price from 2007-2015.

[18] See appendix 5.3 for full list of analysts estimates.

demand. We also see a similar trend in our modified regression model, from 2019 and outwards. Our final estimated prices in 2019-2022 is based on an assumption on a stabilized market development, meaning a more parallel growth in supply and demand.

Forecasted salmon price	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Modified regression analysis	48,12	51,08	52,54	52,31	51,23	50,76	50,30
Fish pool forward prices	53,93	50,20	44,00	39,00	39,00		
Analyst average	48,88	48,83	47,00				
Our estimates	49,97	49,70	48,1	46	44	44	44

Table 5 4 Salmon price forecaste. Source: Own creation/ Fish Pool.

5.1.3 Forecasting harvest volume

The next step in forecasting future revenue is forecasting future harvest volume for GSF. As mentioned in the strategic analysis, there are different factors that influence future growth in harvest volume, such as standing biomass and license utilization. As we saw in section 4.1.2, it seems that GSF has a utilization problem in term of fully utilizing their licenses and capacity, something they acknowledge themselves (Grieg, 2016a, p. 6). In this analysis we will use our finding from the strategic analysis, GSF's own estimates and some analyst's estimates when forecasting future harvest volume.

We have assumed a steady growth in demand in the entire forecasting period, so we will therefore assume that future demand won't affect GSF harvest volume, only the salmon price they can achieve in the market. Also, we won't try to factor in eventualities such as future change in seawater temperature and potential disease outbreaks. This would be to speculative, but is of course something we know can have a significant effect on harvest volume.

Short-term (2016-2017)

In the salmon farming industry, it's normal for companies to use volume guidance throughout the year. As we can see from table 5.1, GSF's historical guidance hasn't been that accurate. The average difference between expected harvest volume and actual harvested volume has been -9%.

GSF guidance	2011	2012	2013	2014	2015	Average
Expected harvested volume	64 800	71 000	69 000	69 000	72 000	
Actual harvested volume	60 082	70 000	58 061	64 736	65 398	
diff	-7,9 %	-1,4 %	-18,8 %	-6,6 %	-10,1 %	-9,0 %

Table 5 5 GSF historical volume guidance. Source: Own creation/ GSF AR's

For this reason, we have decided to use an expected volume for 2016 which is a little below GSF's own volume guidance. GSF expect harvested volume to be 70 000, which would mean an increase of 7% from 2015 (Grieg, 2016a, p. 6). We have decided to use an increase of 6% for 2016. GSF also aims to increase production by 10% annually in the period 2017-2019 (Grieg, 2016a, p. 6). We think GSF could have the potential of growing 10% annually in this period, but this will depend heavily on their ability to better utilize their farming licenses. They have specific plans of improve the situation, and they also expect to see results from the new green licenses in Finnmark in this period. Even so, we think 10% could be a little optimistic, so we have decided to us an increase of 8% in 2017.

Medium-term (2018-2021)

As mentioned above, GSF aim to increase production by 10% annually in the period 2017-2019. GSF acquired 4 new green licenses in Finnmark, which will have a positive impact on harvested volume in this period. GSF also seems to have a utilization problem, and therefore has potential for growth in this way. Other companies in the industry is close to their MAB, and therefore has lower growth potential than GSF in our view.

The new traffic-light system will also have a large impact on potential growth in this period. Since sea lice control is the only real factor in the traffic light system, and it's therefore crucial for companies applying for increased MAB to have this under control. Something that is evident trough the company's continued work with disease control and farming processes. With potential higher MAB in the future through the new traffic-light system and larger smolt from smolt and post-smolt production (DNB, 2016b, p. 12-13), we think there are good potential for growth in yield per license. We also think growth will vary, with high growth at the beginning of the period which will decrease after a while. We expect growth in 2018 to be at the same level as in 2017 at 8%. In 2019 we expect growth to decrease to 7%, and stabilize at 4-5% in 2020-2021.

Long-term (2022 and onwards)

When determining terminal value, it's important that the growth rate doesn't exceed the general growth rate of the economy (Damodaran, 2012, p. 383). For this reason, we have decided to use a growth rate of 2,5%, which coincides with the Norwegian Bank's target annual inflation (Norges Bank, 2016).

Forecasted harvest volume	2016E	2017E	2018E	2019E	2020E	2021E	2022T
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Growth	6,0 %	8,0 %	8,0 %	7,0 %	5,0 %	5,0 %	2,5 %

Table 5 6 Forecasted harvest volume GSF. Source: Own creation/ AR's GSF.

5.1.4 Sales premium

GSF has historically had a low sales premium compared to peers in the industry, as discussed in section 4.1.3. This is a result of GSF low/mild prioritisation of VAP. Most of their sold products are fresh and frozen whole and fillet salmon, and not VAP products. GSF has already decided to close down all VAP production on Shetland, due to bad results, which we expect will have a negative impact on their short-term sales premium (Grieg, 2015d, p. 4).

If we take a closer look at GSF historical sales premium,[19] we can see that the historical spot price is negatively correlated to historical sales premium, meaning when prices increase the sales premium decrease. Since we already have estimated future salmon prices, we will take this result into account when we estimate future sales premiums.

GSF also showed good results in BC in 2015 (Grieg, 2016a, p. 5), which is expected to continue in 2016. Most of the salmon produced in BC is sold in the US market. Prices are expected to increase in the US in 2016 because of the favourable USD/EUR rate (Nordea Markets, 2016, p. 1). This should help to increase GSF's sales premium in the short-term. At the same time, prices are expected to increase this year (Nordea Markets, 2016, p. 4), which would indicate that sales premium would decrease.

In the middle to long-term prices are expected to decrease and stabilize, which should result in increased sales premiums. Taking into account that we think GSF has good growth

[19] See appendix 5.4.

potential and good future outlook, we also expect sales premiums to increase in this period. At the same time, they do not have any concrete planes to expand or invest in VAP. This is an indication that sales premiums will not increase by much.

Forecasted Sales price	2016E	2017E	2018E	2019E	2020E	2021E	2022T
Spot price	49,97	49,70	48,10	46,00	44,00	44,00	44,00
Premium	1,04	1,05	1,07	1,10	1,11	1,10	1,10
Sales price	51,97	52,19	51,47	50,60	48,84	48,40	48,40

Table 5. 7 Forecasted sales price. Sources: Own creation

5.1.5 Summary revenue forecast

In table 5.8, we have summarized our operating revenue forecast for GSF.

Revenue forecast	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Sales Price	51,97	52,19	51,47	50,60	48,84	48,40	48,40
Operting income	3 602 575	3 906 967	4 161 469	4 377 762	4 436 767	4 616 635	4 732 051

Table 5. 8 Revenue forecast GSF. Source: Own creation.

5.1.6 Revenue forecast Ocean Quality

From 2015 Ocean Quality (OQ) will be fully consolidated and dealt with as a subsidiary, as mentioned in the beginning of section 3. this means we have to forecast OQ's future revenues as well, and then consolidate the two forecasts together. Since OQ is a AS and not a publicly traded company, it's more difficult to gather good amounts of data. We have therefore used historical growth in revenue as a base and also looked at other analyst's estimates where we could find them.

OQ has had a very good growth in revenues since it was established in 2011. Some of this growth has of course to do with the expansion and opening of new sales departments in new regions. The average annual growth rate in revenue has been 23,2% since 2011. At the same time the annual growth rate has varied between 12,8% in 2012 and 35,55% in 2013. The growth in 2014 went down to 19% and went up again in 2015 to 25,4%. As mentioned in section 2.7, OQ works as a sales company for both GSF and Bremnes Fryseri AS. Therefore, we can't just factor in growth in GSF's harvest volumes and future sales prices. We think future growth will be below the average annual growth rate, and below the growth in 2015. This is based on the fact that much of past growth in revenue being a result of expansion and establishment of new sales offices, and no future plans for future expansion as we know of.

We have therefore decided to us a growth in revenue of 15% in 2016, 12% in 2017, between 8-12% in the medium-term and 8% in the long-term. Our short-term forecast also coincides with DNB Markets forecast of around 15% in 2016-2018 (DNB Markets, 2016, p. 113). The results from the forecast can be summarized in the table below.

Revenue forecast OQ	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Sales revenue	5 133 600	5 749 632	6 439 588	7 083 547	7 650 230	8 262 249	8 923 229
Growth	15 %	12 %	12 %	10 %	8 %	8 %	8 %
Elimination							
60 %	-3 080 160	-3 449 779	-3 863 753	-4 250 128	-4 590 138	-4 957 349	-5 353 937
Revenue from OQ	**2 053 440**	**2 299 853**	**2 575 835**	**2 833 419**	**3 060 092**	**3 304 900**	**3 569 291**

Table 5. 9 Revenue forecast OQ. Source: Own creation/ GSF AR's and DNB Markets.

5.1.7 Consolidated operating revenue forecast

The consolidated revenue forecast for GSF is summarized in the table below.

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Operating revenue							
Oprating Revenue	3 602 575	3 906 967	4 161 469	4 377 762	4 436 767	4 616 635	4 732 051
Ocean Quality	2 053 440	2 299 853	2 575 835	2 833 419	3 060 092	3 304 900	3 569 291
Total revenue	**5 656 015**	**6 206 820**	**6 737 304**	**7 211 181**	**7 496 859**	**7 921 535**	**8 301 343**

Table 5. 10 Consolidated revenue forecast GSF. Source: Own creation

5.2 Forecasting operating costs

Since most line items in the income statement are driven by revenue, most forecast ratios should be estimates in relation to future revenue (Koller et al. 2010, p. 193-195). This means most future costs will be estimated as a percentage of future revenue, and adjusted in cases where we diem it necessary. All forecast assumptions for the income statement can be found in appendix 5.5.

5.2.1 Cost of material/ cost of goods sold

Cost of material/COGS in relation to operating revenue has historically varied a lot. It was 73% in 2007 and 38% in 2010. One average it has been 53,66% from 2007-2015. In 2014 it was at 43%. In 2015 COGS has gone up to 59,43%, with is a significantly increase. The main reason for this is because of consolidating with Ocean Quality. As discussed earlier, COGS mainly consists of fish feed. So when trying to forecast future COGS, it is important to consider expected future cost of fish feed. Fish feed prices are expected to increase in the

short-term, mainly due to the weak NOK (Pareto, 2016, p. 21). In general, total production cost is expected to increase because of increased fish feed prices and sea lice control (Pareto, 2016, p. 21).

As we saw in the financial analyses in section 3, GSF's cost per kilo has gone substantially up and the overall COGS increased with 100% in 2015 while revenue only increase 71,36%. GSF is in the process of making their production more efficient by both increasing productions per license and reducing cost per kilo. They have also established a purchasing project which aims to reduce purchasing costs by 10%, not including cost of fish feed (Grieg, 2016a, p. 6). GSF has, as mentioned above, big potential for improvement when it comes to efficiency. Operating cost in 2015 were higher than expected because of several extraordinary events, especially considering the difficult situation in Shetland. When forecasting we have not taken into account any single extraordinary events, but we do recognize that there are possibilities for such events to occur. We have therefor calculated for such events by being more pessimistic than we otherwise would have been.

As mentioned above, COGS has gone up significantly in 2015. We do not expect COGS to maintain at this high level in 2016, even dough fish feed prices are expected to increase. Therefore, we have estimated COGS to be 55% in 2016. We also expect COGS to decrease in 2017 to 54%, because of the un-normal high level in 2015.

In the middle to long-term fish feed prices are expected to stabilize, and as a result we estimate COGS to decrease by 0,5% in 2018 and 2019. In the future, new technology and innovation in disease control are expected to decrease cost of disease control (DNB Markets, 2016, p. 6). We also expect GSF to get overall more cost efficient as time goes.

5.2.2 Salaries and personnel costs

Salaries and other personnel cost in relation to operating revenue has increased in both 2013 and in 2014, and have historically been somewhere between 10%-13%. In 2015 however it went down to 8,88%. This is because of the consolidation with Ocean Quality, which is a sales company with relatively high revenue in relation to salaries and personnel costs (which is very normal). On average it has been 11,73% since 2007. In 2015 it was around 9%, which we think is a reasonable level and a good indicator for this line item for the future. Considering GSF's plans to become more efficient, we have decided that salaries and other personnel cost will decrease a little to 8,5% of operating revenue in the future.

5.2.3 Other operating costs

Other operating cost in relation to operating revenue has varied through the years, and have been on average 26,04% since 2007. It went down in 2013 to 27,84% and then up again in 2014 to 28,79%. In 2015 it went down again to 26,49% mainly because of the consolidation with Ocean Quality. Because of GSF's big potential for improvements in efficiency, and their own plans to reduce operating costs, we have decided to use 25% of operating revenue in all future periods.

5.2.4 Other line items

Depreciation has been forecasted as a percentage of PPE. It has been fairly stable around 11,5%-14,5% between 2007-2014, but it went down to 11,49% in 2015 as a result of the consolidation with OQ. We expect the 2015 numbers to be a relative good indication of future depreciation, and have therefore decided to use 11% of PPE in the entire forecasting period.

When calculating future tax on operating profit (EBIT), we have decided to calculate the operating tax rate (Koller et al., 2010, p. 152) because GSF operate within different regions with different tax rates. We have also decided to use GSF own reported numbers for EBIT, and not our own reformulated numbers from section 3. This is because GSF have calculated EBIT per operating region, and we do not have data to calculate this ours self. When calculating the operating tax rate, we also decided to use data from 2014, because the data from 2015 where highly affected by the consolidation with OQ and the bad results from Shetland. We think the calculations from 2014 is more representative for the actual operating tax rate. The operating tax rate in 2014 was 25,36%, and will be used in all future periods (See appendix 5.6).

The pre-tax borrowing cost will be set at GSF cost of debt of 4,92%, as calculated in section 6.3.

5.3 Summary Income statemant forecast

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Operating revenue							
Oprating Revenue	3 602 575	3 906 967	4 161 469	4 377 762	4 436 767	4 616 635	4 732 051
Ocean Quality	2 053 440	2 299 853	2 575 835	2 833 419	3 060 092	3 304 900	3 569 291
Total revenue	**5 656 015**	**6 206 820**	**6 737 304**	**7 211 181**	**7 496 859**	**7 921 535**	**8 301 343**
Operating costs							
Cost of materials	-3 110 808	-3 351 683	-3 604 458	-3 821 926	-3 973 335	-4 198 414	-4 399 712
Salaries and personnel expenses	-480 761	-527 580	-572 671	-612 950	-637 233	-673 330	-705 614
Other operating expenses, Adj.	-1 414 004	-1 551 705	-1 684 326	-1 802 795	-1 874 215	-1 980 384	-2 075 336
Total operating costs	**-5 005 573**	**-5 430 968**	**-5 861 455**	**-6 237 671**	**-6 484 783**	**-6 852 128**	**-7 180 662**
EBITDA	**650 442**	**775 853**	**875 850**	**973 509**	**1 012 076**	**1 069 407**	**1 120 681**
Depreciation and amrtization, Adj.	-180 427	-197 998	-214 920	-230 037	-239 150	-252 697	-264 813
EBIT	**470 015**	**577 855**	**660 930**	**743 473**	**772 926**	**816 710**	**855 868**
Tax on operating profit	-119 198	-146 547	-167 615	-188 548	-196 018	-207 122	-217 052
Net operating profit after tax (NOPAT)	**350 817**	**431 308**	**493 315**	**554 924**	**576 908**	**609 589**	**638 816**
Non-operating items							
Net financial items	-100 309	-93 820	-100 458	-103 156	-100 537	-88 222	-79 860
Tax shield net financial items	25 439	23 793	25 477	26 161	25 497	22 374	20 253
Net financial expenses, after tax	-74 870	-70 027	-74 981	-76 995	-75 040	-65 848	-59 607
Net profit	**275 947**	**361 281**	**418 333**	**477 929**	**501 868**	**543 740**	**579 209**

Table 5. 11 Pro forma income statement. Source: Own creation.

5.4 Balance sheet forecast

When forecasting the balance sheet, we will mainly forecast the line items using the direct method which consists of forecasting line items as a function of revenue (Koller et al. 2010, p. 201). The direct method is in general considered more stable than other methods (Koller et al., 2010, p. 201). For some line items we have decided to use other methods, because we find them more accurate or realistic. In these cases, we will explain the forecasting process in more detail. All forecast assumptions for the balance sheet can be found in appendix 5.5.

5.4.1 Non-current assets

Non-current assets consist of licenses, other intangible assets, deferred taxes, PPE, investments in associated companies and joint venture, capitalized operating leases and other non-current receivables.

Licenses and rights are difficult to predict considering GSF operate in several different regions. The optimal solution would be to estimate how much GSF would need to invest in new licenses based on future expected harvest volume and yield per license. The problem is that each production region has different policies on MAB, and prices for purchasing

licenses vary a lot. We have accurate data on purchasing prices for new licenses in Norway, but not for Shetland and BC. Therefore, we have decided to use licenses as a percentage of operating revenue when forecasting future licenses. We find the level in 2015 of 23,57% as realistic, but too high for future periods. Considering GSF has a utilization problem and are behind competitors in Norway, we expect this ratio to decrease a little in the future. There are also limited opportunities for purchasing new licenses as we know. The only opportunity would be through the second hand market and M&A, which would be to speculative and out of the scope of this thesis. We have therefore decided to use a ratio of 18% of operating revenue in the entire forecasting period.

PPE have been forecasted as a percentage of operating revenue (Koller et al., 2010, p. 202). PPE in absolute numbers have increased steadily throughout the entire period, which is a necessity for operating new licenses acquired through the years. In terms of PPE relative to operating revenue, it has been fairly stable with the exception of 2010 and 2015. In 2010 GSF has a big increase in revenue and very small increase in PPE, and in 2015 the abnormal ration is a result of the consolidation of OQ. The average PPE in relation to operating revenue has been 49,5% since 2007. In 2015 however, the PPE in relation to operating revenue was only 33,09%. We find this to be a more representative result considering the consolidation with OQ. We have therefore decided to use 29% for the entire forecasting period, which is below the level in 2015. This is because of GSF's focus on increasing efficiency, and it makes the growth in PPE reasonable in terms of previous year's growth in PPE.

Investment in associated companies and joint venture as a percentage of revenue has been fairly stable throughout the period, but went down in 2015. We have decided to use a ratio of 1% of operating revenue in all future periods, which is below the historical average of 1,33%, but higher than the level in 2015. *Other non-current receivables* have historically been very low or absent, and we have decided to look away from this line item in the future.

Goodwill will be held at 2015 levels, since we have decided not to model potential M&A (Koller et al., 2010, p. 204).

5.4.2 Current assets

Current assets include inventories, biological assets, accounts receivables and other current receivables.

Since *inventories* mainly consists of raw materials and therefore is tied to input prices, we have decided to use inventories as a percentage of cost of goods sold/cost of materials (Koller et al., 2012, p. 202). The historical average has been 5,73%, but it has gone down to 3,32% in 2015 due to the consolidation with OQ. We have therefore decided to us 3,5% in all future periods.

Biological assets represent the fair value of fish in the sea, adjusted for fish size, how far they are in the growth cycle and logistics (Greig seafood, 2015a, p. 82). The value of biological assets has varied a lot through the years, depending on fish prices and other factors. In 2014 it was at 67,3% of operating revenue, but in 2015 it went down to 41,6% because of the consolidation with OQ. Since this line item is heavily dependent on future harvested volume, MAB and salmon prices, it is difficult to make very accurate assumptions. Both harvested volume and MAB are expected to increase due to increased efficiency and political factors, but this do not necessarily translate directly into increased biological assets at the end of the year (depends on how much the company decides to harvest at different periods of the year). For this reason, we think it is more useful to look at the change in salmon prices. This is already reflected in operating revenue, and we therefore find it reasonable to keep the value of biological assets around the same level as in 2015 of 40% of operating revenue. By doing this we also expect number of fish in the sea in tons at the end of the year to increase in the entire period (which has been fairly stable around 50 000 tons the last 4 years).

Accounts receivables and *other current receivables* have been fairly stable, and will be kept at their historical averages of respectively 10% and 3,26%.

5.4.3 Non-interest bearing debt (current liabilities)

Accounts payables are tied to input prices, and will therefore be forecasted in relation to COGS/cost of materials in the same way as inventories (Koller et a., 2010, p. 202). Accounts payables have been stable, with an historical average of 26,04%. Even so, it went down in 2015 to 23,84%. GSF has also made high effort for reducing purchasing cost (Greig seafood, 2016a, p. 6). We have therefore decided to use 22% of COGS for accounts payables for all future periods. The same method has been used for *Other current receivables*, since they are tied to input prices as well. They will be kept at 2015 level of 4,5% of operating revenue.

Tax payables have been very low or non-existing, and have been kept at 2015 level of 17 239. *Derivatives and other financial instruments* have also been fairly low, and have been kept at 2015 level of 0,58% of operating revenue.

Deferred tax liabilities can be forecasted a number of different ways. Deferred taxes used to occur because of differences in depreciation schedules for the company and tax authorities (Koller et al., 2010, p. 205). Today this line item is way more complex, and often a result of deferral strategies that reduces tax in some years while increasing taxes in future years. This makes it difficult to forecast future level of deferred taxes, because it is unknown when they actually will be paid. In most cases it is an ongoing line item which can increase or decrease depending on future new investments. Since deferred taxes has been relatively stable the last three years, we have decided to keep this line item at the same level as in 2015.

5.4.4 Net operating working capital

After the consolidation with OQ in 2015, the NOWC went down to 41,13%. After our forecasting, this went down to between 38,78% - 39,37% in all future periods.

5.4.5 Equity and NIBD

Forecasting equity and NIBD can be done in several different ways, and they all have their weaknesses. We have decided to use the method recommended by McKinsey, which rely on the rules of accounting (Koller et.al., 2010, p. 205). Another popular method, and much simpler, is to assume a future capital structure based on historical capital structure. This is by many considered too simplistic, especially if the company's historical capital structure has varied a lot or the difference between capital structure measured in book- and- market value is too high.

The method relying on the rules of accounting starts with the principle of clean surplus, meaning all net income will be added to retained earnings (Koller et al., 2010, p 205). We therefore assume the company will not pay any dividend in future periods. At this point, three line items remain: Total interest-bearing debt, cash and cash equivalents and common stock. Some combination of these three line items must make the balance sheet balance, and they are therefore commonly referred to as "the plug" (Koller et al., 2010, p. 206). Common stock has been constant since GSF became listed on the Oslo stock exchange, and will therefore be held constant. It is also common to hold long term debt, or interest bearing debt

constant, which we have done (Koller et al., 2010, p. 206). Until this point, the line item Cash and cash equivalents has been held to zero and will be used as the "plug" in this analysis. By using the primary accounting identity – assets equal liabilities and shareholder equity – we determine the remaining line item Cash and cash equivalents, and the balance sheet balance (Koller et al., 2010, p. 206).

5.5 Summary balance sheet forecast

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Non-current assets							
Licenses	1 018 083	1 117 228	1 212 715	1 298 012	1 349 435	1 425 876	1 494 242
Other intangible assets	16 968	18 620	20 212	21 634	22 491	23 765	24 904
Deffererd tax	0	0	0	0	0	0	0
PPE	1 640 244	1 799 978	1 953 818	2 091 242	2 174 089	2 297 245	2 407 389
Investmnt in associated companies and joint venture	56 560	62 068	67 373	72 112	74 969	79 215	83 013
Capitalized operating leases							
Total non-current assets	**2 731 855**	**2 997 894**	**3 254 118**	**3 483 000**	**3 620 983**	**3 826 101**	**4 009 549**
Goodwill	110 647	110 647	110 647	110 647	110 647	110 647	110 647
Total non-current assets, incl. Goodwill	**2 842 502**	**3 108 541**	**3 364 765**	**3 593 647**	**3 731 630**	**3 936 748**	**4 120 196**
Current assets							
Inventories	108 878	117 309	126 156	133 767	139 067	146 944	153 990
Biological assets	2 262 406	2 482 728	2 694 922	2 884 472	2 998 743	3 168 614	3 320 537
Accounts receivables	565 601	620 682	673 730	721 118	749 686	792 153	830 134
Other current receivables	184 314	202 264	219 551	234 993	244 302	258 142	270 518
Total current assets	**3 121 200**	**3 422 983**	**3 714 359**	**3 974 351**	**4 131 799**	**4 365 853**	**4 575 180**
Non-interest bearing debt							
Accounts payable	684 378	737 370	792 981	840 824	874 134	923 651	967 937
Tax payable	24 545	24 545	24 545	24 545	24 545	24 545	24 545
Accrued salary expenses and public tax payables	45 700	50 151	54 437	58 266	60 574	64 005	67 074
Derivatives and other financial instruments	33 051	36 269	39 369	42 138	43 807	46 289	48 508
Other current payables	139 986	150 826	162 201	171 987	178 800	188 929	197 987
Total non-interest bearing debt, excl. Deferred tax	**927 660**	**999 161**	**1 073 532**	**1 137 759**	**1 181 860**	**1 247 419**	**1 306 051**
Deferred tax liabilities	539 040	539 040	539 040	539 040	539 040	539 040	539 040
Total non-interest bearing debt, incl. Deferred tax	**1 466 700**	**1 538 201**	**1 612 572**	**1 676 799**	**1 720 900**	**1 786 459**	**1 845 091**
Net operating working capital	**2 193 540**	**2 423 822**	**2 640 827**	**2 836 592**	**2 949 938**	**3 118 435**	**3 269 129**
Invested capital, excl. Goodwill	**4 386 355**	**4 882 676**	**5 355 905**	**5 780 552**	**6 031 881**	**6 405 496**	**6 739 637**
Goodwiil	110 647	110 647	110 647	110 647	110 647	110 647	110 647
Invested capital incl. Goodwill	**4 497 002**	**4 993 323**	**5 466 552**	**5 891 199**	**6 142 528**	**6 516 143**	**6 850 284**

Equity	**2 588 328**	**2 949 609**	**3 367 942**	**3 845 871**	**4 347 739**	**4 891 479**	**5 470 688**
Total interest-bearing debt	**2 436 802**	**2 436 802**	**2 436 802**	**2 436 802**	**2 436 802**	**2 436 802**	**2 436 802**
Cash and cash equivalents	528 127	393 088	338 193	391 475	642 013	812 138	1 057 206
Interest bearing assets	**528 127**	**393 088**	**338 193**	**391 475**	**642 013**	**812 138**	**1 057 206**
Net interest bearing debt (NIBD)	**1 908 675**	**2 043 714**	**2 098 609**	**2 045 327**	**1 794 789**	**1 624 664**	**1 379 596**
Invested capital (financing)	**4 497 002**	**4 993 323**	**5 466 552**	**5 891 199**	**6 142 528**	**6 516 143**	**6 850 284**

Table 5. 12 Pro forma balance sheet. Source: Own creation

6. Cost of capital

It is crucial to estimate cost of capital as precisely as possible in order for us to get an accurate estimate on GSF value. This step in the valuation process is crucial in order to ensure that future free cash flow to the firm is discounted at the correct rate. Both equity investors and lenders to fund investments expect to make a return of some sort. Therefore, the most commonly used measure of cost of capital is the weighted average cost of capital (WACC), and will be used in our DCF model (Damodaran, 2012, p. 182).

$$WACC= E/E+NIBD*R_e+ NIBD/E+NIBD*R_s*(1-t)$$

Where E is the market value of equity, NIBD is the market value of net interest bearing debt, R_e is the required rate of return of equity, R_d is the required rate of return on debt, and t is the corporate tax rate. In this section we will look at the capital structure and the cost of equity and debt.

6.1 Capital structure

GSF's equity ratio, based on market value, has varied a lot through the years. This is mainly because of big variation in share prices since they were listed on the Oslo stock exchange. However, we can see that their equity ration the last 3-4 years has been stable around 65-71% (see appendix 6.1). The highest ratio was found at our cut-off point at 04.04.2016 with an equity ratio of 71%. This is of course because of the historical high share price in this period, and because of the general positive salmon market outlook. If we look at other peers, they have historically had a higher equity ratio, measured in market value, than GSF. GSF equity ratio measured in book value, is significantly different from market value (at least in the last two years). We have in our forecast assumed that GSF will change their capital structure, which will move their equity ratio closer to the industry average.

6.2 Cost of equity

The capital asset pricing model CAPM, is the most widely used risk and return model for measuring the cost of equity, and is the standard for most practitioners (Damodaran, 2012, p. 65). Although the model has been criticized for being too unrealistic, it is still the most

commonly used model, and will therefor also be used by us. Expected return can be found by the formula below:

$R_{e=} R_{f+}\beta*(R_m-R_f)$

Where R_f is the risk free rate, β is the beta of the asset, R_m is the expected return on the market portfolio and (R_m-R_f) is the market risk premium.

In the following section we will estimate the risk free rate, the beta of GSF and the market risk premium. We will then at the end join them together to calculate GSF's cost of equity.

6.2.1 The risk free rate

In order for an asset to be risk free, there cannot be any default risk. This essentially rules out any security issued by a private entity, and the only entity that can be considered risk free are government securities. This is not necessarily because governments are better run than private corporations, but because they usually control printing of currency (Damodaran, 2012, p. 154). In developed markets where the government can be viewed as a default-free entity, the risk-free rate should equal the long-term government bond rate (Damodaran, 2012, p. 156). Ideally one should use different risk-free rates for each period, because of reinvestment risk. This would mean that one should match each cash-flow with a government default bond with the same maturity (Damodaran, 2012, p.155). In practice this is very difficult, and the differences are usually very small (Damodaran, 2012, p. 155).

We have used 10-year Norwegian government risk free bond as a proxy for the risk free rate. As of 1th of April 2016, 10-year bonds issued by the Norwegian Bank had a yield of 1,19% (Norges Bank, 2016b). This is a historical low rating, and also well below the Norwegian Banks own inflation goal of 2,5% (Norges Bank, 2016a). We don't find this rating very realistic, and we expect this rate to increase in the short to medium future. We have compiled 5, 10 and 15-year annual average return on 10-year Norwegian government bonds, which can be found in the appendix 6.2. After an overall assessment we have set the risk free rate equal to the 10-year average at 3,32%. This estimate coincides very well with the "normalized risk-free rate" of 3.5% used by many Norwegian fiancé analytics in 2015 (PWC, 2015, p. 7).

6.2.2 Beta

In the CAPM model, beta is a measure of systematic risk and represents the risk that the investment adds to the market portfolio (Damodaran, 2012, p. 183). Assets that are riskier than the market portfolio will have a beta higher than 1, and assets that are safer will have a beta lower than 1. Usually it is normal to use the stock index where the company is listed as a proxy for the market portfolio (Damodaran, 2012, p. 188). We have therefore used OSEBX as a proxy for the market portfolio.

Raw beta

There are several ways of estimating an assets beta, but the traditional way in the CAPM model is by running a regression of historical returns on the investment against the return on the market index (Damodaran, 2012, p. 183), in this case OSEBX which is the main index on the Oslo Stock exchange. The beta of the stock corresponds to the slope of the regression. In our analysis we have used weekly returns over the last 5 years (Damodaran, 2012, p. 188), and we got a raw beta for GSF of 0,94.

Beta	2010-2016	2011-2016
GSF	0,87	0,94
MHG	0,87	0,82
SALM	0,79	0,72
Industry average	**0,84**	**0,83**

Table 6. 1 Raw betas GSF and peers. Source: Own creation/ Bloomberg

As we can see from table 6.1, the beta estimates change due to the different time spans used in the estimates. This can be a result of changes is risk characteristics over the different time periods, such as M&A activities and capital structure (Damodaran, 2012, p. 188). Some of these differences can be dealt with by doing some adjustments. These adjustments have been calculated, and can be found in appendix 6.3.

Betas retrieved from different financial services

We have not weighted these results to heavily in our beta estimation, simply because they probably differ a lot when it comes to estimation horizon and other factors. We know for example that Bloomberg uses a 2-year horizon and calculate their beta related to OBX Stock

Index 25, and not OSEBX. They also calculate adjusted betas[20], which pushes betas towards 1. When doing this they draw on empirical evidence that suggest company beats over time move towards the market average of 1 (Damodaran, 2012, p. 187). The average of around 1 seems to fit well with our own relevered beta estimate of 0,95, found in appendix 6.3. We also collected beta estimates from Damodaran for the European food processor sector and European Farming/agriculture sector of 0,83 and 0,84 (Damodaran, 2016a).

Beta	Bloomberg adj.	FT	Reuters	E24 (1 year)	Average
GSF	0,854	1,13	1,13	0,89	**1,001**
MHG	0,726	0,71	0,7	0,5	**0,659**
SALM	0,59	0,78	0,77	0,27	**0,6025**

Table 6. 2 Betas retrieved from financial services. Source: Own creation/ Bloomberg, financial times, Reuters, E24.

Conclusion beta

Other information gathered and adjustments made (found in appendix 6.3), does not indicate that a raw beta of 0.94 is far off.

Still, we have calculated a weighted average beta from the results in the above analyses and analysis found in appendix 6.3, where we decided to weight our own estimation the most. This resulted in a beta of 0,93 for GSF, which is very close to our own calculated raw beta.

Beta	OSEBX	Scandinavia	Financial services	Damodaran	Weighted avg.
Weights	**60 %**	**10 %**	**20 %**	**10 %**	
GSF	0,95	0,77	1,001	0,84	**0,93**
MHG	0,82	0,67	0,659	0,84	**0,77**
SALM	0,72	0,66	0,6025	0,84	**0,70**

Table 6 3 Weighted average beta. Source: Own creation.

6.2.3 Market risk premium (R_m-R_f)

The market risk premium measures what investors, on average, demand as extra return for investing in the market portfolio relative to the risk-free asset (Damodaran. 2012, p. 161). Market risk premium is the difference between actual returns earned on stock in the market portfolio compared to actual returns on the risk-free asset. It is critical to have a reliable

[20] Adjusted beta= Raw beta*2/3+1*1/3

estimate of market risk premium when calculating WACC in the CAPM model, and it should be forward looking for valuation purposes. The problem is that a forward market risk premium is not observable in the market, and we therefore have to rely on estimates which is normally based on historical data (Damodaran, 2012, p. 161). There are some problems with using these estimates because some markets, including the European market, has a volatile history (Damodaran, 2012, p. 164). However, the Norwegian market is by many considered a mature equity market, and the norm has been to use a premium of 5% (PWC, 2015, p. 8). The average market risk premium from PWC annual assessment on market risk premiums in the financial industry in Norway was 5,2% at the end of 2015. Other studies however, show that this estimate probably is too low. Damodaran uses a market risk premium of 6,25% in Norway (Damodaran, 2016b), and many financial analysts in Norway reported that they will use a premium of 6% or more in 2016 (PWC, 2015, p. 8).

We therefore find it reasonable to use a market risk premium above the "normal" 5%. At the same time, we expect the risk-free rate in Norway to increase in the short to medium term, which in turn will lower the market risk premium. Taking this into consideration, we think a market risk premium of 6% is reasonable.

6.2.4 Conclusion cost of equity

Using the estimates from the above analysis, we can calculate a cost of equity using the CAPM model.

$R_e = R_f + \beta*(R_m-R_f) = 3,32\% + 0,93*6\% = 8,9\%$

6.3 Cost of debt

Normally, when we estimate the cost of debt it is preferable to use the yield of the company's long-term bonds (Koller et al., 2010, p. 261). Since GSF is only debt financed with floating interest-bearing debt by Nordea and Danske Bank we have to apply another approach. So to measure the current cost of debt we will look at the riskless rate, risks of default and tax advantages associated with debt (Damodaran, 2012, p. 211). We start by looking at the risk-free rate that we concluded to be 3,32% previous in this section. The cost of debt should not be lower than this and will most likely be slightly above this level. We

then estimate the interest coverage ratio used to find a synthetic credit rating (Damodaran, 2012 p. 213). Moving on we use the following formula:

Modified interest coverage ratio = (EBIT + Current year's operating lease expense) / (Interest expenses + Current year's operating lease expense)

That equals modified interest coverage ratio of

(348.022.000 + 26.395.000) / (80.786.000 + 26.395.000) = 3,49

This gives us an interest coverage ratio of 3,49 in 2014, which means that the synthetic rating for GSF is BBB with a credit spread of 1,60%. We consider GSF as a firm with low market capitalization since it has a market cap that is less than USD 5 billion (Damodaran, 2012, p. 212). We have also decided to collect the data on operating lease expenses from GSF's own income statement, and not use our own calculations. We believe this will result in a more realistic result using the theories from Damodaran. We have also calculated a synthetic credit rating using methods from Petersen and Plenborg, which can be found in appendix 6.4. The overall result gave a credit rating of BB. But some ratios gave a BBB rating and all the other BB ratios where so close to being BBB rating that we decided that the overall estimate supports our estimate of BBB used above.

This gives GSF an estimated cost of debt of 4,92%. Since we combine the risk-free rate that is 3,32% and the credit spread estimated above to 1,60%.

6.4 Weighted average cost of capital (WACC)

We now have all the inputs we need to calculate GSF weighted average cost of capital (WACC). A summary of the calculation can be found in the table below.

WACC	Market value	Book value
E/(E+NIBD)	0,6998	0,5230
NIBD/(E+NIBD)	0,3002	0,4770
Re	8,88 %	8,88 %
Rg	4,92 %	4,92 %
Tax shield	74,64 %	74,64 %
WACC	**7,32 %**	**6,40 %**

Table 6. 4 GSF WACC. Source: Own creation.

As we can see from table 6.6, the WACC calculation varies a lot from using market value and book value of equity. Most practitioners find it more reasonable to use market value instead of book value (Damodaran, 2012, p. 222), and we also find that calculation to be more realistic. The WACC using book value seems to be too low. As we will see later in this thesis, variations in the WACC can heavily influence the valuation of GSF. Therefore, we have made a sensitivity analysis, which analyses what happens if we change our assumptions on cost of capital.

7. Valuation

Based on the pro formula income statement and balance sheet found in section 5, we will in this section estimate a value of GSF. There are several models for valuing a company, but in general there are three main approaches. These are discounted cash flow models (DCF), relative valuation and contingent claim valuation (based on option pricing models) (Damodaran, 2012, p. 11). In this thesis we will focus on DCF models and relative valuation. DCF models estimate values based on the expected present value of free cash flows, and relative valuation estimates the value of a company based on the pricing of comparable assets in relation to a common variable such as earnings, book value, sales and so on (Damodaran, 2012, p. 11).

When it comes to present value models, we will focus mainly on the adjusted present value method (APV) because our forecast has assumed GSF will change its capital structure in the future. The reason why we have decided to focus mainly on present value models, is because they are the foundation on which all other valuation approaches are built (Damodaran, 2012, p. 11). These methods are also preferred by practitioners and academics because they rely only on cash flows, and not accounting based earnings (Koller et al., 2010, p. 103). In the case of relative valuation, we will use a collection of multiples to estimate a value of GSF.

We recognize that the results from present value models are highly affected by changes in input variables. Throughout this thesis we have tried our best to make reasonable estimates for use in the valuation process, and we think our estimates are reliable. However, to show how our estimated values of GSF are affected by change in input variables, we will perform a sensitivity analysis.

7.1 Present value models

All our present value models start out with free cash flow to the firm (FCFF), which is shown below.

FCFF	2016E	2017E	2018E	2019E	2020E	2021E	2022E
NOPAT	350 834	431 328	493 315	554 924	576 908	609 589	638 816
Depreciation	180 435	198 007	214 920	230 037	239 150	252 697	264 813
Change in NWC	-285 654	-230 287	-216 893	-195 765	-113 347	-168 496	-150 694
CAPEX	-300 000	-300 000	-300 000	-300 000	-300 000	-300 000	-300 000
FCFF	**-54 385**	**99 047**	**191 342**	**289 196**	**402 711**	**393 789**	**452 935**

Table 7 1 FCFF GSF. Source: Own creation.

As we can see, it is only the first year of the forecast which gives a negative FCFF. All other years are positive. It is interesting to note that the change in NWC is negative in all years, meaning current assets increase more than non-interest bearing debt in the period. This is a natural result of GSF increasing their yield per license in terms of increased biological assets. As we can see, CAPEX is also negative throughout the period. CAPEX in 2015 where around 300 mill (Grieg seafood, 2016a, p. 10). CAPEX is investment in physical assets, such as PPE. Since GSF historical CAPEX mainly has been investment in PPE, and because our forecast suggest that PPE will increase at about the same level as resent years, we have decided to keep CAPEX constant throughout the period. This is also as a result of limited MAB and limited opportunity for acquiring new operating licenses.

7.1.1 Adjusted present value model

Because our forecast assumes that GSF will change its capital structure during the period, we have decided to use the adjusted present value model (APV). A normal DCF model discount free cash flow using WACC, which works best when a company maintain a relatively stable capital structure (Koller et al., 2010, p. 103). The APV model values any cash flow associated with capital structure separately, instead of embedding their value in cost of capital. This approach starts with valuing the firm as if it had no debt, which can be done by discounting FCFF with the company's unlevered cost of equity[21]. The second step is then to calculate the expected tax benefit of debt, by finding the present value of the tax shield (Damodaran, 2012, p. 398).

[21] $B_{unlevered} = \beta_{current} / (1+(1-t)D/E_{current})$

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
FCFF	-54 385	99 047	191 342	289 196	402 711	393 789	452 935

Unlevered beta	0,70		
Unlevered RE	7,53 %	Rf	3,32 %
Long term growth	2,50 %	MRP	6 %
Rg	4,92 %		
Terminal value	**9 223 927**		

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
FCFF	1	2	3	4	5	6	7
FCFF	-54 385	99 047	191 342	289 196	402 711	393 789	9 676 862
Present value FCFF	**-50 575**	**85 656**	**153 880**	**216 283**	**280 079**	**254 688**	**5 820 184**

Total present value FCFF	**6 760 195**

Debt due at start of the year	2 040 689	1 908 894	2 043 934	2 098 589	2 045 306	1 794 767	1 624 641
Interest expenses	100 309	93 831	100 469	103 155	100 536	88 221	79 858
Tax shield	**25 439**	**23 796**	**25 479**	**26 161**	**25 496**	**22 373**	**20 253**

Terminal value tax shield	**412 017**

Tax shield	25 439	23 796	25 479	26 161	25 496	22 373	432 269
PV tax shield at pre tax Rg	**24 247**	**21 618**	**22 063**	**21 592**	**20 058**	**16 776**	**308 943**

Estimated PV tax shield 31.12.2015	**435 298**

Estimated enterprise value 31.12.2015	**7 195 492**
NIBD 31.12.2015	2 040 689
Minority shares	30 349
Estimated equity value 31.12.2015	5 124 454
Estimated equity value 04.04.2016	**5 222 246**
Number of shares	111 662
Estimated share price	**46,77**
Potential upside	**9,78 %**

Table 7 2 APV GSF. Source: Own creation.

After we found the total present value, including the present value of the tax shield, we got an enterprise value of 7 195 million the 31.12.2015. To find the equity value, we have to subtract market value of NIBD and minority shares. As mentioned in section 6, we have used book value as market value for debt. Estimated equity value 31.12.2015 is 5 124 million, but to find the implied value at our cut off at 04.04.2016, we need to adjust it forward using this formula: E*(1+unlevered Re)^(95/365). This gives us an estimated equity value of 5 222 million, which when divided by the number of outstanding shares gives an estimated share price of 46,77. This implies a potential upside of 9,78%.

7.1.2 DCF using WACC

As mentioned above, we will focus mainly on the APV model in this thesis, but we have decided to calculate a normal DCF using WACC as well to see if we get a similar result. The results can be found in the table below.

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
FCFF	-54 385	99 047	191 342	289 196	402 711	393 789	452 935

WACC	7,32 %
Long term Growth	2,50 %
Terminal value	**9 635 560**

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
FCFF	**1**	**2**	**3**	**4**	**5**	**6**	**7**
FCFF	-54 385	99 047	191 342	289 196	402 711	393 789	10 088 495
Present value FCFF	-50 677	85 999	154 807	218 022	282 896	257 765	6 153 375

Estimated enterprise value 31.12.2015	**7 102 188**
NIBD 31.12.2015	2 040 689
Minority shares	30 349
Estimated equity value 31.12.2015	5 031 150
Estimated equity value 04.04.2016	**5 124 491**
Number of shares	111 662
Estimated share price	**45,89**
Potential upside	7,73 %

Table 7 3 DCF using WACC. Source: Own creation.

As we can see from table 7.3, the DCF model using WACC as discount rate gives a very similar result as the APV model. The estimated share price is 45,89, with a potential upside of 7,73%.

7.2 Relative valuation – multiples

Another approach to valuating Grieg Seafood and its equity is to use relative valuation and multiples. Before we give an investment recommendation we will value GSF by comparing the company with other peers in the industry. This will give us another perspective when assessing the fundamental values in addition to the present value approach and supplement our findings and analysis. We have calculated our own multiples using 2015 numbers, and we have used market consensus for 2016 as a supplement. All calculations can be found in appendix 7.1. It is also important to note that we have added a new company to the peer group just for this multiple exercise, just to get a more accurate result. The company added to the peer group is Lerøy Seafood Group (LSG).

7.2.1 Chose of multiples

When we chose multiples we had to look into what multiples we could choose between and also what would be a good fit for the salmon farming industry. A relative value approach can in theory be divided into multiples that are used to estimate the enterprise value (EV) and another approach that aims to estimate the market value of equity (Petersen & Plenborg, 2012, p. 228-29). We have found the enterprise value approach appropriate for the industry and also a common practice among analysts. Listed in the tablet below is an overview of GSF and the selection of peer group and their enterprise values.

	GSF		MHG		SALM		LSG	
	2015	04.04.2016	2015	04.04.2016	2015	04.04.2016	2015	04.04.2016
Market Cap	3 327 528	4 756 801	53 830 244	57 926 023	17 561 500	23 169 850	18 010 410	20 902 991
Share price	30	42,6	119,6	129	155	205	330	383
# stocks	111 662	111662	450 086	450 086	113 300	113 300	54 577	54 577
NIBD	2 040 689	2040689	14 440 872	14 440 872	2 722 086	2 722 086	2 014 980	2 725 092
Cash	392 020	392020	688 700	688 700	273 696	273 696	1 360 272	1 247 614
Enterprice value	4 976 197	6 405 470	67 582 416	71 678 196	20 009 890	25 618 240	18 665 118	22 380 469

Table 7. 4 Enterprise value GSF and peers. Source: Own creation

In table 7.5 below we have listed up our chose of multiples with descriptions, benefits and disadvantages. We have favoured multiples consisting of enterprise value (EV) as a proxy. These are less affected by capital structure than other multiples such as price over earnings P/E (Koller et al. 2010, p. 317).

We have chosen to include both EV/EBITDA and EV/EBIT for comparison reasons. They have the same concentration, but when valuating an industry such as the salmon farming industry consisting of much heavy machinery, we found it useful to include both.

Multiples	Description of multiples with (dis)advantages
EV/Sales	*measures the representative firms enterprice value compared to the companies sales. We estimated the sales based on HOGs/kilo.* **PROs**: 1. Sales are a god proxy and a driving factor for all companie when measuring performance 2. It is also a good measure, especially when comparing companies that sell the same (homogeneus) products such as salmon and other similar products 3. A good fit when looking at the a consentrated industry such as the salmon farming industry with feve big players. 4. Less exposed to accounting measures (LSG 2015) **CONs:** It is not optimal since sales do not count as a directly value driver such as revenues (as
EV/EBITDA	*measures the representative firms enterprice value compared to its operative earnings.* **PROs:** 1. EBITDA is a well known proxy for free cash flow (GSF 2015) 2. It only consentrates around the pure operation side of the selected companie 3. Not affected by depreciations, amortizations and variations as such 4. Focuses on the core operations (GSF 2015) **CONs:** Whan excluding depriciations and amortizations it also exclude the variations of these factors. The same goes for variations in taxation
EV/EBIT	*Compares Enterprice Value to earnings before interest and taxes.* **PROs:** Takes into account depreciation. **CONs:** Affected by variation in deprecation and amortization.
EV/Kilo	*An industry specific multiple comparing Enterprice value and theyearly HOG/kilo from annual reports* **PROs:** 1. A common pick amongst leading analysts in the industry 2. Focuses on the core operations 3. Easy to compare (apples and apples) when looking into the different companies **CONs:** Have to make an assumtion that all other parts of the operations are equal
P/B	*Compares the price on the underlying assets against equity.* **PROs:** 1. Can be useful if assets are the core driver of earnings. 2. Easy to compare similar firms **CONs:** 1. A very commen multiple in several industries, but developes in the same pace as the price development on the underlying assets. 2. Book value can be affected by accounting decisions.

Table 7. 5 Multiples used. Source: (Koller et al., 2010, p. 313-333) and (Damodaran, 2012, p.453-539).

7.2.2 Multiple valuation

Multiple valuation	EV/Sales		EV/EBITDA		EV/EBIT		EV/Kilo		P/B	
	2015	2016E	2015	2016E	2015	2016E	2015	2016E	2015	2016E
MHG	2,42	1,96	13,62	8,50	20,34	10,35	160,85	165,32	2,96	2,81
SALM	2,73	3,01	11,22	8,98	13,68	10,33	146,70	193,98	3,36	3,51
LSG	1,38	1,52	9,95	7,23	12,95	8,60	112,82	133,54	2,06	2,13
Harmonic mean	**2,00**	**1,99**	**11,41**	**8,16**	**15,04**	**9,69**	**137,00**	**160,49**	**2,67**	**2,70**
Estimated share price	**64,47**	**83,94**	**9,98**	**30,46**	**-4,68**	**23,67**	**61,69**	**82,54**	**53,57**	**62,56**
Share price 04.04.2016	29,80	42,60	42,60	42,60	42,60	42,60	42,60	42,60	42,60	42,60
Upside potential	51,33 %	97,04 %	-76,56 %	-28,49 %	-110,99 %	-44,43 %	44,82 %	0,94	25,76 %	46,86 %
High	94,9	135,2	15,5	32,4	0,21	26,47	75,66	103,33	67,32	81,30
Low	38,9	59,6	6,4	25,0	-6,61	19,11	47,53	65,81	41,18	49,26

Table 7. 6 Multiple valuation GSF. Source: Own creation

As seen in table 7.5, three out of five multiples results in a potential upside (EV/sales, EV/Kg and P/B), and two result in potential downside (EV/EBITDA and EV/EBIT). That both EV/EBITDA and EV/EBIT results in a potential downside is not very suppressing considering GSF's bad results in 2015 and because of the consolidation with OQ the same year. At the same time, EV/EBITDA is considered the best multiple for comparing valuations across companies because it is un-bias to capital structure (Koller et al. 2010, p. 314). GSF estimated value using this multiple is very low, which is not a great result. As mentioned many times in this thesis, we do not find GSF's accounting results for 2015 that representative because of the consolidation with OQ, and will therefore not weight these result to much in the final conclusion of GSF's estimated value.

7.3 Sensisitivity analysis

In our valuation, we have used estimates that are based on information gathered from both the strategic and financial analysis in section 3 and 4, other analysts within the field and our own subjective opinion. In any valuation, the results are highly dependent on the estimated inputs, and these inputs are often associated with uncertainty. For this reason, we have decided to perform a sensitivity analysis on the results from out APV valuation to see how variations in the input factors affect the estimated value of GSF.

The input variables we have decided to analyse further is the long term growth rate for the terminal value, unlevered cost of equity, the unlevered beta and the risk free rate.

Long term growth vs. unlevered Re (WACC)

	Growth rate	Optimistic		Realistic			Pessimistic	
Unlevered Re	46,77	**6,70 %**	**7 %**	**7,30 %**	**7,53 %**	**7,90 %**	**8,20 %**	**8,50 %**
Pessimistic	**1,75 %**	50,46	46,26	42,52	39,91	36,14	33,40	30,91
	2 %	53,46	48,88	44,82	42,01	37,95	35,01	32,36
	2,25 %	56,80	51,77	47,35	44,30	39,91	36,76	33,92
Realistic	**2,50 %**	60,54	54,99	50,14	**46,81**	42,06	38,67	35,61
	2,75 %	64,75	58,59	53,24	49,59	44,42	40,74	37,45
	3 %	69,54	62,63	56,70	52,68	47,02	43,02	39,46
Optimistic	**3,25 %**	75,01	67,22	60,58	56,13	49,89	45,52	41,66

Table 7. 7 Long term growth vs. unlevered Re. Source: Own creation.

Since terminal values account for almost 85% entire enterprise value in our APV valuation, the overall result is sensitive to changes is the long term growth. We have used the inflation estimates for Norway as out long term growth, which we find reasonable. There is a principle in DCF valuation that the long term growth can't be higher than the long term growth in the economy as a whole (Damodaran, 2012, p. 383). Considering the outlook of the salmon farming industry, we think the potential long term growth rate could be higher than what we have estimated for. This could mean that the potential upside is higher than the potential downside of this valuation result.

Unlevered beta vs. risk free rate

	Unlevered β	Optimistic		Realistic			Pessimistic	
Rf	46,77	**2,40 %**	**2,70 %**	**3,00 %**	**3,32 %**	**3,60 %**	**3,90 %**	**4,20 %**
Pessimistic	**1,00**	36,60	33,74	31,16	28,65	26,65	24,67	22,85
	0,90	43,28	39,76	36,60	33,56	31,16	28,80	26,65
	0,80	51,69	47,23	43,28	39,54	36,60	33,74	31,16
Realistic	**0,70**	62,57	56,76	51,69	**46,95**	43,28	39,76	36,60
	0,65	69,31	62,57	56,76	51,37	47,23	43,28	39,76
	0,60	77,22	69,31	62,57	56,40	51,69	47,23	43,28
Optimistic	**0,55**	86,61	77,22	69,31	62,16	56,76	51,69	47,23

Table 7. 8 Unlevered beta vs. risk free rate. Source: Own creation.

In section 6 we used a lot of attention in collecting information that went into calculating the return on equity and the WACC. They are still however calculated estimates, and therefore subject to some level of uncertainty. As we know, both the beta and the risk free rate affect the unlevered cost of equity and WACC greatly, which in turn affect the valuation result as seen in table 7.7. In this analysis we have focused on the unlevered beta, because this is the input in our APV valuation. As we can see, the value of GSF varies between 28,65 and 62,16 depending on the level of the unlevered beta (0,55-1), all else equal.

As mentioned in section 6.2.1, we have set the risk-free rate equal to the 10-year average return on Norwegian government bonds of 3,32%. This is of course higher than the observed return on government bonds today. The risk-free rate might therefor be different to our estimate. At the moment we think it is more realistic that the risk-free rate is actually lower instead of higher than our estimate, and we therefore find it reasonable that the potential upside is higher than the potential downside.

7.4 Scenario analysis

7.4.1 Scenario 1 – Increased focus on product innovation and VAP

As discussed in section 4.1, we concluded that GSF were under average when it comes to product innovation and VAP, which is evident through their low sales premium. We find big potential for GSF in this area, especially because of increased demand for these kind of products both in Europe, Asia and America. In this scenario we will examine how increased focus on product innovation and VAP would affect GSF value.

Best case

In the best case, GSF strategy works and their new products are well received in the market. Their sales premium increase, which again will result in higher costs.

Focus on product innovation	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Premium	**1,10**	**1,20**	**1,25**	**1,30**	**1,35**	**1,35**	**1,35**
Operating revenue	5 864 142	6 765 282	7 437 365	8 007 137	8 456 160	8 970 770	9 376 809
Operating revenue/kg	**84,59**	**90,36**	**91,98**	**92,55**	**93,09**	**94,05**	**95,91**
COGS/kg	**-50,76**	**-54,22**	**-53,35**	**-50,90**	**-49,34**	**-49,85**	**-50,83**
Total operating cost per kg	-79,09	-84,49	-84,16	-81,91	-80,52	-81,35	-82,96
EBIT adj/KG	**2,80**	**2,99**	**4,88**	**7,69**	**9,60**	**9,70**	**9,89**
NOPAT	144 878	167 141	294 769	496 646	650 730	690 331	721 577
FCFF	-234 022	-260 611	-58 426	176 975	405 227	472 015	559 355
Estimated equity value 04.04.2016	6 250 412						
Number of shares	111 662						
Estimated share price	**55,98**						
Potential upside	31,40 %						

Table 7 9 Scenario 1, best case. Source: Own creation.

As seen from the table 7.8 above, GSF sales premium increased and at the same time operating costs per kilo also increase the first two years. After this point we assume their costs will stabilize as they get more efficient, and we also assume that their sales premium stabilizes after 3-4 years. Our estimated cost can be a little understated in the long term, but

it is important to keep in mind that this is a best case scenario. EBIT/kg is actually very realistic. This scenario gives GSF a potential share price of 56, and an upside of 31,4%.

Worst case

In this case, GSF's new product are for different reasons not well received in the market. Demand for such new products and VAP diminish both in Europe and Asia. GSF is therefore not able to increase their sales premium, but they are stuck with increased cost because of their new strategy. After 2-3 years they realize that their strategy has failed, and they abandon the strategy all together. After this, their cost level start to decrease to "normal" levels again. As we can see from table 7.9 below, this has a dramatic effect on GSF estimated value. The estimated share price falls to just 18,72, which gives a potential downside of 56%.

Focus on product innovation	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Premium	**1,04**	**1,05**	**1,07**	**1,07**	**1,07**	**1,07**	**1,07**
Operating revenue	5 656 285	6 207 104	6 737 304	7 091 787	7 336 975	7 795 627	8 172 287
Operating revenue/kg	**81,59**	**82,91**	**83,32**	**81,97**	**80,77**	**81,73**	**83,59**
COGS/kg	**-55,48**	**-56,38**	**-56,66**	**-49,18**	**-44,42**	**-44,95**	**-45,97**
Total operating cost per kg	-82,82	-84,15	-84,57	-76,64	-71,48	-72,33	-73,97
EBIT adj/KG	**-3,83**	**-3,89**	**-3,91**	**2,71**	**6,71**	**6,79**	**6,95**
NOPAT	-198 004	-217 285	-235 846	175 207	455 079	483 527	506 890
FCFF	-400 212	-519 146	-513 312	-157 679	211 274	252 070	319 650
Estimated equity value 04.04.2016	2 090 546						
Number of shares	111 662						
Estimated share price	**18,72**						
Potential upside	-56,05 %						

Table 7. 10 Scenario 1, worst case. Source: Own creation.

7.4.2 Scenario 2 – Change in fundamental inputs

In this scenario we will analyse how changes in different inputs will affect the overall value of GSF. More specifically we will analyse how changes in sport price, harvest volume and COGS affect GSF value. The analysis builds on the findings in the financial and strategic analysis summarized in the SWOT analysis.

Best case

The best case scenario is based on different assumptions which we will discuss in more detail now.

When it comes to the sales price, we assume that sales premiums will increase a little bit from the base case, but not by much. There is still relatively slow supply growth in the short term, and low supply from Chile due to the difficult biological situation. Demand increase more than expected due to increases market scope, health awareness and GDP, but also because of increased product innovation. Prices of substitutes are also assumed to increase, which will have a positive effect on the salmon price as well.

Harvested volume for GSF increase, due to GSF big potential for increased licence utilization. We also assume that the Norwegian government issue new licenses through the new traffic light system in the short to medium future, due to less problems with sea lice and other diseases.

Because of stabilization in fish diseases, costs are kept down. Fish feed prices are also assumed to stabilize, and GSF plans to reduce cost and become more cost efficient are realised.

The results from the scenario analysis can be found in table 7.10 below. As we can see, this best case scenario results in an estimated share price of 64,07, which implies a potential upside of 50,39%.

Change in fundamentals	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Harvest volume	70 630	76 987	83 915	90 629	96 066	101 830	104 885
Premium	**1,10**	**1,12**	**1,12**	**1,15**	**1,15**	**1,15**	**1,15**
Spot price	51,00	51,00	49,00	46,50	45,00	45,00	45,00
Operating revenue	6 015 774	6 697 323	7 181 108	7 679 780	8 031 521	8 574 614	8 997 097
Operating revenue/kg	**85,17**	**86,99**	**85,58**	**84,74**	**83,60**	**84,20**	**85,78**
COGS/kg	**-45,99**	**-46,11**	**-44,50**	**-44,06**	**-43,47**	**-43,79**	**-44,61**
Total operating cost per kg	-74,53	-75,25	-73,17	-72,45	-71,48	-72,00	-73,34
EBIT adj/KG	**7,93**	**8,97**	**9,68**	**9,58**	**9,46**	**9,52**	**9,70**
NOPAT	418 032	515 381	606 210	648 306	677 999	723 846	759 510
FCFF	-96 858	144 372	326 536	393 994	493 630	480 326	577 670
Estimated equity value 04.04.2016	7 153 894						
Number of shares	111 662						
Estimated share price	**64,07**						
Potential upside	50,39 %						

Table 7. 11 Scenario 2, best case. Source: Own creation.

Worst case

As with the best case scenario, the worst case scenario is based on assumptions which will be discussed in more detail.

The sales price will fall due to increased supply because of new licenses, alternative production (on land) and recovery in Chile. Demand fall due to decreasing prices of substitutes and lower growth in GDP than expected, but also because of higher difficulties in reaching new markets in Asia and America due to trading restrictions.

When it comes to harvested volume for GSF, there are no new licenses issued from the Norwegian government because of problems with sea lice (traffic light system). GSF do not manage to reach their goals for increased license utilization, which also results in lower growth in harvest volume than expected.

Increased fish diseases result in higher costs, and increased pressure in the raw material market results in increased fish feed prices as well. GSF do not succeed in decreasing their overall costs at the degree they wished for, and cost efficiency becomes an increasing problem. The results from the worst case scenario can be found in the table below.

Change in fundamentals	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Harvest volume	68 668	72 101	75 706	78 735	81 097	83 530	85 618
Premium	**1,04**	**1,05**	**1,07**	**1,08**	**1,10**	**1,10**	**1,10**
Spot price	45,00	44,00	42,00	42,00	40,00	40,00	40,00
Operating revenue	5 267 098	5 630 933	5 978 079	6 404 821	6 628 345	6 980 200	7 336 474
Operating revenue/kg	**76,70**	**78,10**	**78,96**	**81,35**	**81,73**	**83,57**	**85,69**
COGS/kg	**-46,02**	**-46,86**	**-45,80**	**-47,18**	**-46,59**	**-47,63**	**-48,84**
Total operating cost per kg	-71,72	-73,02	-72,25	-74,43	-73,97	-75,63	-77,55
EBIT adj/KG	**2,54**	**2,59**	**4,19**	**4,32**	**5,16**	**5,27**	**5,41**
NOPAT	130 127	139 116	236 933	253 846	312 179	328 750	345 530
FCFF	-40 192	-119 971	-32 217	-6 501	122 130	114 844	141 273
Estimated equity value 04.04.2016	392 932						
Number of shares	111 662						
Estimated share price	**3,52**						
Potential upside	-91,74 %						

Table 7. 12 Scenario 2, worst case. Source: Own creation.

As we can see from table 7.11, this scenario results in an estimated share price of just 3,52, which would imply a potential downside of 91,74%. It is important to note that this is an absolute worst case scenario, and we find it very unrealistic that all the above mentioned assumptions will occur at the same time.

7.4.3 Scenario 3 – foucus on cost efficiency

In this scenario we assume GSF will focus 100% on cost efficiency, and less on product innovation and VAP.

Best case

In this case, we will assume GSF gradually will decrease their cost. Since they focus less on product innovation and VAP, we also assume that their sales premium will decrease compared to the base case. Since GSF do not focus a lot on this aspect as it is, and have a low premium already, this will not affect their overall value to much. As we can see from table 7.12, this scenario results in an estimated value of 77,78, which would imply an potential upside of 82,58%. This is of course an absolute best case scenario.

Focus cost-efficiency	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Premium	**1,04**	**1,05**	**1,05**	**1,05**	**1,05**	**1,05**	**1,05**
Operating revenue	5 656 285	6 207 104	6 659 520	7 012 191	7 257 033	7 711 688	8 086 250
Operating revenue/kg	**81,59**	**82,91**	**82,36**	**81,05**	**79,89**	**80,85**	**82,71**
COGS/kg	**-45,69**	**-45,60**	**-43,65**	**-42,15**	**-39,94**	**-39,62**	**-39,70**
Total operating cost per kg	-73,03	-73,37	-71,24	-69,30	-66,70	-66,70	-67,41
EBIT adj/KG	**5,96**	**6,89**	**8,49**	**9,17**	**10,63**	**11,57**	**12,66**
NOPAT	308 615	384 998	512 472	591 950	720 951	823 679	924 041
FCFF	-49 706	53 659	216 588	359 375	521 216	568 148	711 114
Estimated equity value 04.04.2016	8 685 124						
Number of shares	111 662						
Estimated share price	**77,78**						
Potential upside	82,58 %						

Table 7 13 Scenario 3, best case. Source: Own creation.

Worst case

In this scenario GSF manage to reduce their cost, but at a much slower rate than anticipated or expected. As we can see from table 7.13, this has a dramatic effect on GSF value and illustrates how important cost management is within the salmon farming industry. This scenario results in an estimated share price of 29,84, which implies a potential downside of 29,95%.

Focus cost-efficiency	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Harvest volume	69 322	74 868	80 857	86 517	90 843	95 385	97 770
Premium	**1,04**	**1,05**	**1,05**	**1,05**	**1,05**	**1,05**	**1,05**
Operating revenue	5 656 285	6 207 104	6 659 520	7 012 191	7 257 033	7 711 688	8 086 250
Operating revenue/kg	**81,59**	**82,91**	**82,36**	**81,05**	**79,89**	**80,85**	**82,71**
COGS/kg	**-48,96**	**-48,92**	**-47,77**	**-46,20**	**-44,74**	**-44,47**	**-44,66**
Total operating cost per kg	-76,29	-76,69	-75,36	-73,35	-71,50	-71,55	-72,37
EBIT adj/KG	**2,70**	**3,57**	**4,37**	**5,11**	**5,84**	**6,72**	**7,70**
NOPAT	139 742	199 680	263 941	330 257	395 954	478 321	561 908
FCFF	-166 541	-126 592	-12 464	101 738	215 726	229 064	354 150
Estimated equity value 04.04.2016	3 332 140						
Number of shares	111 662						
Estimated share price	**29,84**						
Potential upside	-29,95 %						

Table 7. 14 Scenario 3, worst case. Source: Own creation.

7.5 Valuation summary

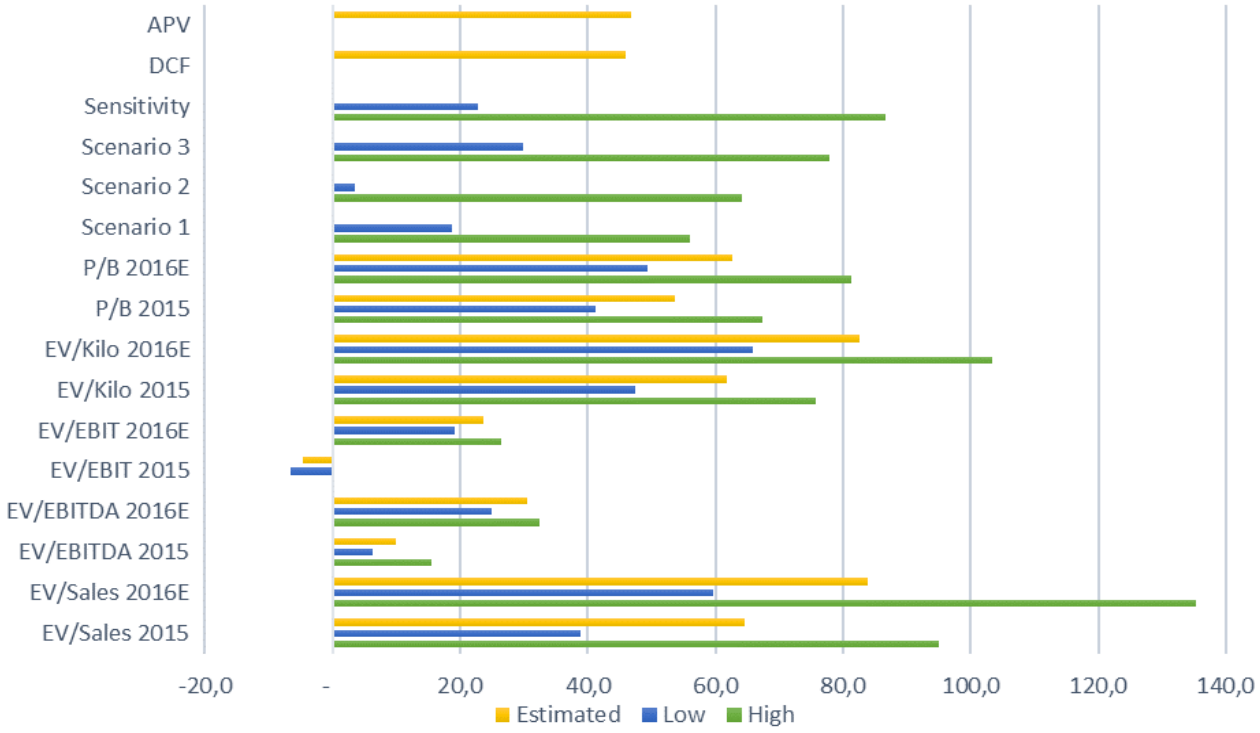


Figure 7 1 Valuation summary GSF. Source: Own creation.

All estimated share prices for GSF is summarized in Figure 7.1 above. Our fundamental analysis resulted in a APV valuation of 46,77, which infers a potential upside of 9,78%. Our DCF valuation resulted in a similar share price of 45,89, with a potential upside of 7,73%. We will as mentioned, weight the results from the APV valuation more than the results from the DCF valuation because this method is considered to be more accurate if the company changes its capital structure during the forecasted period.

Our relative valuation resulted in an estimated value from -4,68 to 83,94, with an average of 46,82. This is of course a very wide spread of values, and are distorted by GSF unusual results in 2015. Much due to the accounting consolidation with OQ. If we only look at the relative valuation from 2016E, the estimated values range from 23,67 to 83,94. The average upside from all multiples (both 2015 and 2016) is 9,91%. This result indicates that GSF is currently undervalued, and a result that supports our findings from the fundamental analysis. The average downside from multiples from 2015 is -13,13% and the average upside from

multiples from 2016E is 32,95%. This result also shows that the general consensus amongst analysts is that GSF has potential for improvements.

Our sensitivity analysis showed that GSF estimated value is highly sensitive to changes in crucial valuation inputs such as long term growth rate in terminal value, unlevered R_e, unlevered beta and risk free rate. We concluded that the potential upside is higher than the potential downside because the actual risk free rate might be lower than the one we have used, and because the long term growth rate in the salmon farming industry might be higher than the 2.5%. At the same time we recognize that there are high levels of uncertainty considering this conclusion.

Furthermore, we also calculated three possible scenarios. In two of these scenarios we look at absolute best and worst case outcomes of possible strategical changes (absolute focus on product innovation and absolute focus on cost efficiency). This showed that GSF has more upside potential from focusing on a cost efficiency strategy (scenario 3) than a product innovation strategy (scenario 1), similarly to what they actually are trying to achieve today. The last scenario looks at a best and worst case outcome from a hypothetical scenario were several input factors changes at the same time.

8. Discussion of valuation result

GSF share price is at an all-time high at the moment, but we still think that there is potential upside in their share. Our APV valuation resulted in an estimated share price of 46,77, with a potential upside of 9,78%. This result seems to be in line with the general consensus among analysts following the salmon farming industry, that GSF is undervalued at the moment. The average target price among analysts we gathered information from is 51,4, with estimates ranging from 40 (FondsFinans) to 60 (Handelsbanken). The difference in estimated share price indicates that GSF value is highly affected by changing market conditions, and if they succeed with their expansion plans and plans for a much more cost efficient operation.

Taking this into account, our estimated share price using the APV method seems to generate a reasonable result. This price is under the average target price from analysts we have gather information from, which can indicate that there is even more potential upside than we have calculated for. This can of course be a result of difference in assumptions taken during the valuation process, which is natural. We have tried to keep our assumptions on valuation inputs realistic, but at the same time leaning more towards pessimistic than optimistic in cases where there is high uncertainty. By doing this we think our estimated share price of 46,77 has more potential upside than downside, which is supported by other analysts estimated target prices being higher than our own APV result.

9. Conclusion

As stated in our problem statement in section 1, the purpose of this thesis was to find the fundamental value of Grieg Seafood's equity, and a fair value of their trading stock. The foundation of our forecast and cash flow is based on our finding from the financial and strategic analysis. The main focus was on cash flow valuation models such as the APV model, but we also calculated share prices based on relative valuation using multiples. To further strengthen the analysis, we performed sensitivity and scenario analysis.

The salmon farming industry is a highly cyclical industry, with a very long production cycle. This makes it difficult for salmon farming companies to adjust supply short term, and makes them volatile for changes in salmon prices. Furthermore, the industry analysis in section 2 revealed that there are few places in the world that are ideal for salmon farming, where Norway is one of these places.

The financial analysis revealed that the salmon farming industry has historically been very profitable, but with very large variation mainly because of variation in salmon prices. This furthermore show that the underlying salmon price is one of the key value drivers in the industry. The financial analysis also showed that GSF has had the lowest revenue per kilo, and at the same time relatively low costs per kilo. Even so, GSF has performed well below other peers, which is illustrated trough their low historical ROIC and ROE.

In the internal strategic analysis (VRIO) we concluded that GSF don't really have any sustained competitive advantage. GSF also has had low capacity utilization and high costs, which is expected to improve in the future due to implementation of specific plans to become more cost efficient. In The external analysis (Porter's five forces), we concluded that high barriers to entry because of limited access to licenses, strict regulation and high capital investment was an advantage for the industry. At the same time, rivalry amongst existing competitors is relatively high, and threat from substitutes is also high. Both the external analysis and macro analysis (PESTEL) revealed that mainly political factors such as limited access to new licenses and MAB, puts a cap on future growth in supply. Limited supply growth in the short term combined with high demand growth is expected to keep salmon prices at a high level short to middle term. New regulation such as the traffic light system in Norway and new production methods such as one land production, is expected to increase

harvested volume in the medium to long term. This will again have a negative effect on the salmon price.

The forecast was based on our findings from the previous analysis. This forecast resulted in an estimated share price of 46,77 through the APV method. This indicates a potential upside of 9,78%. The average result from all multiples (2015 and 2016), support our findings from the APV valuation. Even so, the average multiples from 2016, which is based on other analyst's estimates, show an average potential upside of 33%. Our sensitivity analysis also shows that GSFs estimated share price is highly sensitive to changes in valuation inputs such as long term growth rate in terminal value, WACC, risk free rate and beta. The results from the scenario analysis also reveal that GSF has higher potential upside from following a low-cost strategy rather than a product development strategy, which is in line with their current strategy.

The overall conclusion from our thesis is that GSF is undervalued and has potential upside in their share price, and we will give a buy recommendation for potential investors.

10. Final thoughts and perspective

When we started our master thesis, the salmon farming industry was experiencing good times with high salmon prices. This is a trend that has kept going throughout the beginning of 2016, and looks to keep on going in the short term at least. Historically, the salmon farming industry has been very volatile and highly affected by changes in key value drivers such as salmon price, which again is highly dependent on changes in salmon supply and demand. Global salmon supply has historically varied a lot, but is expected to become more stable in years to come. This is mainly due to innovations and progress in salmon production. Demand on the other hand is more difficult to anticipate, but is also expected to increase in the future.

We have during this thesis tried to be as accurate and precise in our estimation as possible, and we think we have realized this in a satisfying way. But due to limited time and space of the thesis, some aspects of the salmon farming industry were not included in the same degree of detail. We have for example not calculated for potential M&A activities, which we think would be to speculative, but could also be an interesting exercise/scenario to look at. Other aspects of the salmon farming industry which could be interesting to look at separately, is new production methods such as on land salmon production. We have indirectly taken this into account when forecasting, but not looked at it in great detail. This is still in its very early stage of development, but has become more and more relevant (especially in Norway) after our cut-off point for gathering information gathering. Also, we have not calculated for separate disease outbreaks, which could have a strong effect on the market. Such outbreaks are difficult to predict and we think it would be highly speculative, but at the same time it could be interesting to see how such an outbreak could affect the value of GSF.

Overall we think the salmon farming industry is a very interesting industry, and the market outlook is very positive.

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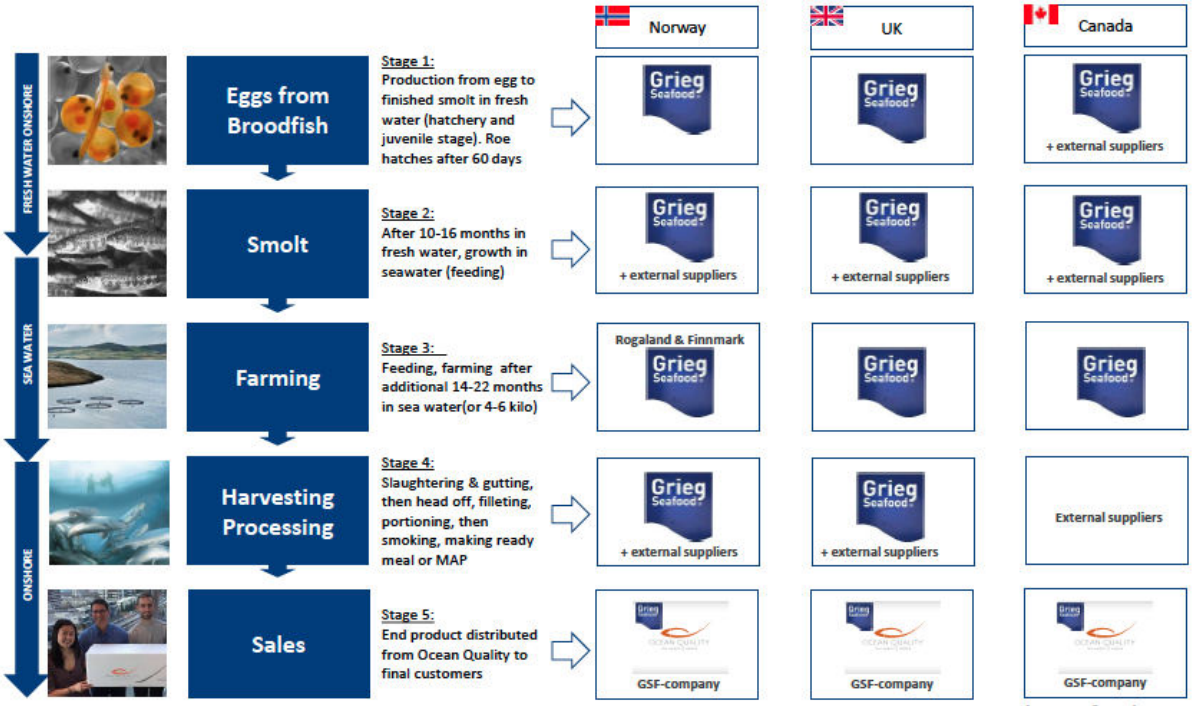
12. Appendix

Part 2 - GSF and the Salmon farming industry

Appendix 2.1 – An overview of the value chain (internal and external distribution)



Appendix 2.2 – Strategic events

	Strategic events from 2007-2015
2007	Acquisition of Target Marine Products Ltd
2007	Acquisition of Hjaltland Seafarms AS
2007	Acquisition of Watt & Goodlad Ltd
2007	Acquisition of North Atlantic Seafarms Ltd
2007	Acquisition of Havfisk Ltd
2007	Listing on Oslo Stock Exchange
2009	Infusion of capital by cash contribution and converted bonds
2010	GSF Hjaltland Ltd aqcuired Northen Aquaculture Ltd.
2010	Established Ocean Quality AS
2011-12	Purchsed remaining 51,3% og shares in Erfjord Stamfisk AS
2011-12	GSF Hjaltland Ltd aqcuired Skelda Salmon Garms Ltd and G. Ducan Ltd
2014	Established Ocean Quality UK Ltd.

Appendix 2.3 – Ownership in GSF

Source: Grieg 2016a

Owership 09.05.2016	Number of shares	Shareholding
Grieg holdings AS	55 801 409	49,97 %
DNB Nor Markets	22 151 415	19,84 %
Nordea Bank Norge ASA	6 605 998	5,92 %
Kontrari AS	3 735 482	3,35 %
YSTHOLMEN AS	2 928 197	2,62 %
OM Holding AS	2 610 000	2,34 %
State Street Bank and Trust Co.	1 305 901	1,17 %
Grieg Seafood ASA	1 250 000	1,12 %
Total - large shareholders	**96 388 402**	**86,32 %**
Other shareholders	15 273 598	13,68 %
Total shares	**111 662 000**	**100 %**

Part 3 – Historical financial analysis

Appendix 3.1 – Reformulated income statement and balance sheet for GSF and peers.

GSF – reformulated income statement

Adjustments due to operating leases	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net operating lease	79	5 673	813	708	5 223	6 489	5 853	7 191	14 874
Intrest	20	1 418	203	177	3 042	3 791	3 000	4 300	5 862
Depreciation	59	4 255	610	531	2 181	2 698	2 853	2 892	9 012
Estimated length in years	5	5	5	5	12	12	10	12	8
Present value (Assets and NIBD)	393	28 364	4 064	3 538	60 846	75 824	60 003	85 990	117 239

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating revenue									
Oprating Revenue	1 021 810	1 477 029	1 612 619	2 446 490	2 046 991	2 050 065	2 404 215	2 665 284	4 608 667
Other revenue	46 542	10 474	8 826	9 398	16 769	28 164	20 827	73 758	29 703
Total revenue	**1 068 352**	**1 487 503**	**1 621 445**	**2 455 888**	**2 063 760**	**2 078 229**	**2 425 042**	**2 739 042**	**4 638 370**
Income from associated companies	-1 897	700	1 985	12 337	38 869	11 831	7 889	12 867	10 136
Total revnue including income from associated companies	**1 066 455**	**1 488 203**	**1 623 430**	**2 468 225**	**2 102 629**	**2 090 060**	**2 432 931**	**2 751 909**	**4 648 506**
Operating costs									
Cost of materials	-746 174	-903 678	-900 581	-932 118	-1 087 430	-1 202 314	-968 978	-1 153 526	-2 738 926
Salaries and personnel expenses	-136 246	-165 148	-193 300	-238 409	-238 382	-276 103	-302 223	-339 592	-409 432
Other operating expenses, Adj.	-196 735	-326 972	-409 728	-592 044	-598 362	-635 885	-669 303	-767 269	-1 220 821
Changes in inventories	205 859	51 637	158 085	-10 412	197 753	0	0	0	0
Total operating costs	**-873 296**	**-1 344 161**	**-1 345 524**	**-1 772 983**	**-1 726 421**	**-2 114 302**	**-1 940 504**	**-2 260 387**	**-4 369 179**
EBITDA	**193 159**	**144 042**	**277 906**	**695 242**	**376 208**	**-24 242**	**492 427**	**491 522**	**279 327**
Depreciation and amrtization, Adj.	-73 700	-114 777	-122 192	-120 105	-142 387	-164 043	-138 890	-143 501	-176 386
EBIT	**119 459**	**29 265**	**155 714**	**575 137**	**233 821**	**-188 285**	**353 537**	**348 022**	**102 941**
Tax on operating profit (effectiv tax rate)	53 585	-6 455	-42 490	-152 022	-86 312	51 333	-73 925	-49 331	-151 751
Net operating profit after tax (NOPAT)	**173 044**	**22 810**	**113 224**	**423 115**	**147 509**	**-136 952**	**279 613**	**298 690**	**-48 810**
Non-operating items									
Net financial items	-39 327	-233 965	46 727	2 793	-30 822	-108 347	-73 056	-55 722	-93 301
Interest capitalized operating leases	-20	-1 418	-203	-177	-3 042	-3 791	-3 000	-4 300	
Tax shield net financial items	-17 641	51 605	-12 750	-738	11 378	29 539	15 276	7 898	137 540
Net financial expenses after tax	**-56 987**	**-183 778**	**33 773**	**1 878**	**-22 487**	**-82 599**	**-60 780**	**-52 123**	**44 239**
Impairment/reversal	0	-200 000	0	72 385	0	0	0	0	-46 195
Fair value adjustment of biological assets	-44 075	-35 747	115 276	207 629	-395 180	98 063	267 450	-127 108	33 209
Special items after tx	**-63 846**	**-183 749**	**83 821**	**206 000**	**-249 305**	**71 328**	**211 526**	**-109 091**	**6 157**
Net Profit (from income statement)	**52 202**	**-344 404**	**230 874**	**631 040**	**-123 159**	**-147 190**	**430 986**	**138 086**	**4 366**
Reported tax	-16 165	-97 461	86 640	226 727	-72 064	-55 170	113 945	22 806	-13 574
Profit before tax	36 037	-441 865	317 514	857 767	-195 223	-202 360	544 931	160 892	-9 208
Effective tax rate	**-44,86 %**	**22,06 %**	**27,29 %**	**26,43 %**	**36,91 %**	**27,26 %**	**20,91 %**	**14,17 %**	**147,42 %**

GSF – reformulated balance sheet

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-current assets									
Licenses	849 838	831 921	818 340	926 170	987 596	976 740	994 066	1 066 184	1 093 338
Other intangible assets	-	8 205	5 578	3 160	4 618	3 800	4 545	11 517	16 993
Deffered taxes									10 317
PPE	639 092	794 346	819 110	923 546	1 126 699	1 141 317	1 204 207	1 424 562	1 534 770
Investmnt in associated companies and joint venture	10 879	11 579	13 619	33 456	37 387	49 229	41 190	41 937	25 947
Capitalized operating leases	393	28 364	4 064	3 538	60 846	75 824	60 003	85 990	117 239
Other non-current receivables	10 275	1 790	-	1 958	311	53	255	-	-
Total non-current assets	**1 510 477**	**1 676 205**	**1 660 711**	**1 891 828**	**2 217 457**	**2 246 963**	**2 304 266**	**2 630 190**	**2 798 604**
Goodwill	138 661	43 616	87 583	90 540	105 373	105 108	107 310	108 708	110 647
Total non-current assets, incl. Goodwill	**1 649 138**	**1 719 821**	**1 748 294**	**1 982 368**	**2 322 830**	**2 352 071**	**2 411 576**	**2 738 898**	**2 909 251**
Current assets									
Inventories	34 927	44 592	49 180	58 409	67 355	65 692	74 015	88 250	90 867
Biological assets	1 067 574	1 073 341	1 367 061	1 564 041	1 404 934	1 310 142	1 766 332	1 844 097	1 929 115
Accounts receivables	111 893	157 876	188 052	265 350	223 682	124 657	177 814	254 043	581 904
Other current receivables	82 578	48 488	57 051	43 265	64 581	51 299	54 015	57 287	145 767
Total current assets	**1 296 972**	**1 324 297**	**1 661 344**	**1 931 065**	**1 760 552**	**1 551 790**	**2 072 176**	**2 243 677**	**2 747 653**
Non-interest bearing debt									
Accounts payable	197 356	214 687	233 443	253 305	303 196	246 119	317 753	300 521	653 083
Tax payable	9 402	-	-	-	-	-	1 471	50 645	24 545
Accrued salary expenses and public tax payables	8 619	13 611	13 869	25 104	22 514	19 720	21 731	13 013	12 134
Derivatives and other financial instruments	50	122 532	9 672	1 605	7 887	13 805	11 631	23 475	27 104
Other current payables	25 535	23 702	72 400	41 674	48 452	53 982	54 761	109 803	122 795
Total non-interest bearing debt, excl. Deferred tax	**240 962**	**374 532**	**329 384**	**321 688**	**382 049**	**333 626**	**407 347**	**497 457**	**839 661**
Deferred tax liabilities	281 294	207 020	331 995	531 498	486 702	426 781	557 350	559 542	539 040
Total non-interest bearing debt, incl. Deferred tax	**522 256**	**581 552**	**661 379**	**853 186**	**868 751**	**760 407**	**964 697**	**1 056 999**	**1 378 701**
Net operating working capital	**1 056 010**	**949 765**	**1 331 960**	**1 609 377**	**1 378 503**	**1 218 164**	**1 664 829**	**1 746 220**	**1 907 992**
Invested capital, excl. Goodwill	**2 285 193**	**2 418 950**	**2 660 676**	**2 969 707**	**3 109 258**	**3 038 346**	**3 411 745**	**3 816 868**	**4 167 556**
Goodwiil	138 661	43 616	87 583	90 540	105 373	105 108	107 310	108 708	110 647
Invested capital incl. Goodwill	**2 423 854**	**2 462 566**	**2 748 259**	**3 060 247**	**3 214 631**	**3 143 454**	**3 519 055**	**3 925 576**	**4 278 203**

Equity	**1 266 083**	**928 603**	**1 374 421**	**1 982 405**	**1 690 150**	**1 513 230**	**1 988 557**	**2 221 919**	**2 237 511**
Net interest bearing debt									
Loan	9 800	13 517	13 548	14 581	-	-	850 646	958 828	1 518 261
Other long term borrowings	563 484	8 065	711 419	646 686	613 673	975 844	24 056	23 640	21 425
Financial leasing labilities	123 352	213 117	198 167	168 856	179 670	156 150	170 251	236 430	272 968
Other non-current liabilities	19 096	5 882	691	3 292	-	-	-	-	-
Bank overdraft	337 957	-	-	-	-	-	-	-	-
Short term loan facilities	-	496 702	482 989	260 000	700 000	500 000	425 000	-	-
Current portion of long-term borrowings	76 184	807 827	85 295	79 000	79 983	109 542	111 060	487 664	101 922
Current portion of financial leasing liabilitis	52 498	35 305	37 383	41 726	44 662	44 730	46 149	53 231	61 008
Factoring liabilities	0	0	0	0	0	0	0	0	338 231
Pension obligations and cash-settled option	4 369	4 161	3 278	7 896	1 751	10 377	610	2 532	4 498
Capitalized operating leases	393	28 364	4 064	3 538	60 846	75 824	60 003	85 990	117 239
Cash-settled share option	-	-	-	-	-	-	9 567	929	1 250
Interest bearing debt	**1 187 133**	**1 612 940**	**1 536 834**	**1 225 575**	**1 680 585**	**1 872 467**	**1 697 342**	**1 849 244**	**2 436 802**
Securities									
Derivatives and other financial instruments	1 991	8 243	20 350	-	1 178	-	518	-	-
Cash and cash equivalents	24 318	68 146	139 778	143 727	152 622	239 885	163 913	144 003	392 020
Available for sale financial assets	156	178	945	557	1 307	1 337	1 392	1 518	2 667
Loans to associated companies	2 897	2 410	1 923	3 449	996	1 020	1 020	67	1 426
Interest bearing assets	**29 362**	**78 977**	**162 996**	**147 733**	**156 103**	**242 242**	**166 843**	**145 588**	**396 113**
Net interest bearing debt (NIBD)	**1 157 771**	**1 533 963**	**1 373 838**	**1 077 842**	**1 524 482**	**1 630 225**	**1 530 499**	**1 703 656**	**2 040 689**
Invested capital (financing)	**2 423 854**	**2 462 566**	**2 748 259**	**3 060 247**	**3 214 632**	**3 143 455**	**3 519 056**	**3 925 575**	**4 278 200**

MHG – reformulated income statement

Adjustment due to operating leases	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net operating leases		18 404	13 694	11 099	156 798	127 139	173 054	220 828	524 421
Intres		4 930	6 117	5 777	43 658	36 475	46 565	58 667	137 244
Depreciation		13 474	7 576	5 322	113 140	90 664	126 490	162 161	387 177
Estimated length in years		5	9	10	6	6	5	5	5
Present value (assets and NIBD)		98 609	122 347	115 531	873 165	729 505	931 291	1 173 347	2 744 872

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating revenue									
Operating revenue	14 091 500	13 486 900	14 619 500	15 281 200	16 132 800	15 420 400	19 177 300	25 300 400	27 710 200
Other revnue	-	-	-	-	-	43 200	22 100	230 900	170 500
Total revenue	**14 091 500**	**13 486 900**	**14 619 500**	**15 281 200**	**16 132 800**	**15 463 600**	**19 199 400**	**25 531 300**	**27 880 700**
Income from associated companies	66 600	5 800	69 500	202 000	-8 500	88 300	221 800	149 500	209 700
Total revenue incl. Ncome from associated companies	**14 158 100**	**13 492 700**	**14 689 000**	**15 483 200**	**16 124 300**	**15 551 900**	**19 421 200**	**25 680 800**	**28 090 400**
Operating costs									
Cost of materials	-9 146 100	-8 654 400	-8 796 600	-7 780 700	-8 398 600	-9 666 500	-9 998 500	-13 677 400	-15 858 400
Salery and personnel expenses	-2 165 000	-2 139 800	-2 167 400	-2 202 500	-2 177 800	-2 418 700	-2 674 300	-3 320 900	-3 825 500
Other operating expenses, Adj.	-1 304 300	-1 375 396	-1 434 506	-1 442 701	-1 906 402	-2 036 361	-2 408 846	-3 129 172	-3 445 479
Total operating costs	**-12 615 400**	**-12 169 596**	**-12 398 506**	**-11 425 901**	**-12 482 802**	**-14 121 561**	**-15 081 646**	**-20 127 472**	**-23 129 379**
EBITDA	**1 542 700**	**1 323 104**	**2 290 494**	**4 057 299**	**3 641 498**	**1 430 339**	**4 339 554**	**5 553 328**	**4 961 021**
Depreciation and amortization	-791 800	-698 774	-695 276	-658 322	-779 840	-767 864	-888 990	-1 128 961	-1 639 177
EBIT	**750 900**	**624 330**	**1 595 217**	**3 398 977**	**2 861 658**	**662 475**	**3 450 565**	**4 424 367**	**3 321 844**
Tax on operating profit (effectice tax)	-562 411	-78 355	-344 213	-914 350	-541 540	-316 004	-1 024 770	-2 237 926	-1 216 665
Net operating profit after tax (NOPAT)	**188 489**	**545 976**	**1 251 004**	**2 484 627**	**2 320 118**	**346 471**	**2 425 795**	**2 186 442**	**2 105 179**
Non-operating items									
Net financial items	-44 700	-1 781 500	312 800	-208 900	173 500	-179 500	-1 204 300	-2 146 700	-852 600
Interest expenses capitalized operating leases		-4 930	-6 117	-5 777	-43 658	-36 475	-46 565	-58 667	-137 244
Tax shield financial assets	33 480	223 582	-67 495	56 196	-32 833	85 622	357 660	1 085 840	312 275
Net financial expenses after tax	**-11 220**	**-1 562 848**	**239 187**	**-158 481**	**97 009**	**-130 353**	**-893 204**	**-1 119 527**	**-677 569**
Impairment losses/write downs/revesals	-12 100	-1 579 400	-373 100	-5 000	-67 000	-500	-65 000	-24 100	-60 900
Fair value uplift on harvested fish	-750 000	-80 400	-	-	-	-1 575 800	-4 323 700	-5 518 500	-4 098 900
Fair value adjustment on biological assets	399 600	-198 400	301 200	1 091 700	-1 514 000	1 926 000	6 118 300	5 007 700	4 189 200
Provisions for onerous contracts	-	-	-	-14 300	-5 800	-6 100	-124 700	23 700	-6 600
Restructuring costs	-196 300	-241 000	-169 500	-4 400	-21 800	-800	-272 800	-52 900	-136 300
Other non-operating items	-	-	-	-	-	-	-74 400	-168 200	21 700
Total special items	-558 800	-2 099 200	-241 400	1 068 000	-1 608 600	342 800	1 257 700	-732 300	-91 800
Special items after tax	**-140 269**	**-1 835 746**	**-189 311**	**780 700**	**-1 304 189**	**179 283**	**884 180**	**-361 889**	**-58 177**
Net profit from continuing operations	**37 000**	**-2 852 000**	**1 302 200**	**3 108 400**	**1 121 200**	**412 800**	**2 430 600**	**734 700**	**1 419 700**
Reportet tax on earning before tax	110 400	-409 300	358 300	1 143 900	261 700	376 500	1 026 800	752 000	820 500
Earning before tax	147 400	-3 261 300	1 660 500	4 252 300	1 382 900	789 300	3 457 400	1 486 700	2 240 200
Effective tax rate	**74,90 %**	**12,55 %**	**21,58 %**	**26,90 %**	**18,92 %**	**47,70 %**	**29,70 %**	**50,58 %**	**36,63 %**

MHG – reformulated balance sheet

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-current assets									
Licenses	5 566 600	5 766 600	5 409 500	5 442 500	5 577 500	5 435 400	6 036 100	6 514 900	7 163 800
Deferred tax assets	27 000	230 500	54 500	118 600	160 100	73 900	178 800	147 300	110 300
Other intangible assets	135 900	160 000	136 000	132 900	123 100	114 200	188 400	166 500	265 000
PPE	3 894 700	4 243 600	3 518 100	3 885 100	4 167 500	4 111 900	6 677 200	8 257 200	9 246 400
Investment in associated companies	541 100	513 500	520 100	678 900	624 400	647 300	900 400	978 200	1 188 800
Capitalized operating leases		98 609	122 347	115 531	873 165	729 505	931 291	1 173 347	2 744 872
Other non-current assets	-	-	-	2 600	25 800	73 200	8 800	14 500	20 500
Total non-current assets, excl. Goodwill	**10 165 300**	**11 012 809**	**9 760 547**	**10 376 131**	**11 551 565**	**11 185 405**	**14 920 991**	**17 251 947**	**20 739 672**
Goodwill	3 344 600	2 239 900	2 142 600	2 111 600	2 146 100	2 115 500	2 374 900	2 416 900	2 484 700
Total non-current assets, incl. Goodwill	**13 509 900**	**13 252 709**	**11 903 147**	**12 487 731**	**13 697 665**	**13 300 905**	**17 295 891**	**19 668 847**	**23 224 372**
Current assets									
Inventory	917 400	1 074 500	742 700	775 800	783 000	819 700	1 751 100	2 400 800	2 664 500
Biological assets	5 553 900	5 620 600	5 351 100	7 278 100	6 285 200	6 207 900	9 536 600	10 014 000	10 939 600
Trade receivables (accounts receivables)	1 883 400	1 903 400	1 672 100	1 844 900	1 914 900	1 782 000	3 191 400	3 360 200	3 926 200
Other receivables	667 500	532 400	551 600	814 700	609 800	592 700	1 086 500	1 110 500	1 540 500
Total current assets	**9 022 200**	**9 130 900**	**8 317 500**	**10 713 500**	**9 592 900**	**9 402 300**	**15 565 600**	**16 885 500**	**19 070 800**
Non-interest bearing debt									
Current tax liabilities	-	69 900	50 800	49 700	86 600	26 200	252 600	525 200	696 300
Trade payales	1 349 700	1 729 200	1 339 800	1 450 200	1 481 800	1 452 500	2 232 600	2 039 200	2 379 700
Other current liabilities	907 100	2 349 900	1 048 600	1 112 200	1 180 300	1 475 400	1 967 700	3 112 300	2 831 600
Total non-interest bearing debt, excl. Deferred tax	**2 256 800**	**4 149 000**	**2 439 200**	**2 612 100**	**2 748 700**	**2 954 100**	**4 452 900**	**5 676 700**	**5 907 600**
Deferred tax liabilities	1 199 700	732 900	1 142 600	2 237 900	2 351 900	2 543 700	3 365 000	3 568 900	3 759 300
Total non-interest bearing debt, incl Deferred tax	**3 456 500**	**4 881 900**	**3 581 800**	**4 850 000**	**5 100 600**	**5 497 800**	**7 817 900**	**9 245 600**	**9 666 900**
Net working capital	**6 765 400**	**4 981 900**	**5 878 300**	**8 101 400**	**6 844 200**	**6 448 200**	**11 112 700**	**11 208 800**	**13 163 200**
Invested capital , excl. Goodwill	**15 731 000**	**15 261 809**	**14 496 247**	**16 239 631**	**16 043 865**	**15 089 905**	**22 668 691**	**24 891 847**	**30 143 572**
Goodwill	3 344 600	2 239 900	2 142 600	2 111 600	2 146 100	2 115 500	2 374 900	2 416 900	2 484 700
Invested capital, incl. Goodwill	**19 075 600**	**17 501 709**	**16 638 847**	**18 351 231**	**18 189 965**	**17 205 405**	**25 043 591**	**27 308 747**	**32 628 272**
Equity and debt									
Total equity	**12 484 000**	**9 624 600**	**11 460 500**	**12 570 700**	**10 842 100**	**11 688 700**	**16 346 300**	**14 718 200**	**18 187 200**
Net interest bearing debt									
Non-current interest bearing debt	5 856 900	6 747 700	5 116 900	5 107 300	6 589 400	5 338 500	7 710 200	10 669 100	10 279 300
Current interest bearing debt	1 249 200	1 365 500	130 300	429 700	157 000	377 800	686 700	7 000	1 500
Other non-current liabilities	136 400	116 700	99 800	571 100	99 300	414 700	976 200	2 334 400	2 125 300
Capitalized leases		98 609	122 347	115 531	873 165	729 505	931 291	1 173 347	2 744 872
Liabilities held for sale	-	-	-	-	-	-	190 500	-	-
Interest bearing debt	**7 242 500**	**8 328 509**	**5 469 347**	**6 223 631**	**7 718 865**	**6 860 505**	**10 494 891**	**14 183 847**	**15 150 972**
Securities									
Cash and cash equivalents	362 600	372 600	172 200	318 900	279 100	335 300	606 200	1 408 300	688 700
Other shares	288 300	78 900	118 800	124 200	92 100	1 008 600	132 100	166 100	4 000
Assets held for sale	-	-	-	-	-	-	1 059 100	19 000	17 400
Interest bearing assets	**650 900**	**451 500**	**291 000**	**443 100**	**371 200**	**1 343 900**	**1 797 400**	**1 593 400**	**710 100**
Net interest beaaring debt (NIBD)	**6 591 600**	**7 877 009**	**5 178 347**	**5 780 531**	**7 347 665**	**5 516 605**	**8 697 491**	**12 590 447**	**14 440 872**
Invested capital	**19 075 600**	**17 501 609**	**16 638 847**	**18 351 231**	**18 189 765**	**17 205 305**	**25 043 791**	**27 308 647**	**32 628 072**

SALM reformulated income statement

Adjustments due to operating leases	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net operating leases	4 307	4 069	19 816	21 863	25 636	30 055	2 928	1 588	18 309
Interest	1 116	1 017	16 774	18 535	21 994	22 363	738	407	4 784
Depreciation	3 191	3 052	3 042	3 328	3 642	7 692	2 190	1 181	13 525
Estimathed length in years	5	5	17	17	17	15	5	5	5
Present value (Assets and NIBD)	22 318	20 344	335 483	370 708	439 878	447 266	14 758	8 133	95 674

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operaing revenue									
Operaing revenue	1 665 530	1 704 242	2 376 262	3 399 868	3 800 204	4 180 414	6 228 305	7 160 010	7 303 506
Other operating revenue	12 157	10 014	1 042	29 564	33 299	24 377	17 555	25 877	22 696
Total operating revenue	**1 677 687**	**1 714 256**	**2 377 304**	**3 429 432**	**3 833 503**	**4 204 791**	**6 245 860**	**7 185 887**	**7 326 202**
Income from associatd companies	31 600	12 248	56 769	147 365	97 999	93 909	157 980	96 136	40 242
Total revenue incl. Income from associates	**1 709 287**	**1 726 504**	**2 434 073**	**3 576 797**	**3 931 502**	**4 298 700**	**6 403 840**	**7 282 023**	**7 366 444**
Operating costs									
Cost of materials	-836 652	-922 016	-1 162 445	-2 013 312	-2 373 168	-2 715 056	-3 376 109	-3 337 411	-3 809 523
Excess value of inventory from acuisitions	-17 641	-9 303	-	-33 587	-20 259	-	-	-	-
Salaries and other personnel costs	-217 808	-240 393	-265 517	-313 290	-391 745	-483 215	-623 053	-710 430	-765 881
Other operating costs, Adj.	-186 963	-249 632	-292 157	-380 590	-680 255	-855 928	-1 083 371	-1 141 365	-1 253 877
Change in inventory	47 750	103 844	25 567	401 629	395 900	390 297	324 914	162 119	246 712
Total operating costs	**-1 211 314**	**-1 317 500**	**-1 694 552**	**-2 339 150**	**-3 069 527**	**-3 663 902**	**-4 757 619**	**-5 027 087**	**-5 582 569**
EBITDA	**497 973**	**409 004**	**739 521**	**1 237 647**	**861 975**	**634 798**	**1 646 221**	**2 254 936**	**1 783 875**
Depreciation and amortization	-53 862	-58 277	-69 620	-97 290	-135 642	-177 313	-223 010	-276 946	-320 805
EBIT	**444 111**	**350 727**	**669 901**	**1 140 357**	**726 333**	**457 485**	**1 423 211**	**1 977 990**	**1 463 070**
Tax on operating profit (effetiv tax)	-119 440	-98 439	-172 432	-273 757	-59 319	-95 528	-256 621	-501 970	-269 524
Net operating profit after tax (NOPAT)	**324 671**	**252 288**	**497 469**	**866 600**	**667 014**	**361 958**	**1 166 590**	**1 476 019**	**1 193 546**
Non-operating items									
Net financial items	-55 969	-82 012	-2 801	-40 394	-115 151	-124 264	214 666	-113 994	-100 362
Interest capitalized operating leases	-1 116	-1 017	-16 774	-18 535	-21 994	-22 363	-738	-407	-4 784
Tax shield net financial items	15 052	23 018	721	9 697	9 404	25 948	-38 707	28 929	18 488
Net financial expenses after tax	**-42 033**	**-60 011**	**-18 854**	**-49 232**	**-127 741**	**-120 680**	**175 221**	**-85 471**	**-86 657**
Fair value adjustment bioogical assets	94 234	-32 996	-4 624	181 023	-368 098	290 417	528 176	-232 349	39 932
Non-recuring gains on acqusitions	-	-	-	-	-	62 390	161 755	-	-
Particular biologicl events	-	-	-	-	-60 070	-54 614	-	-	-
Write downs PPE	-	-	-11 600	-1 668	-543	-547	-5 000	-2 399	-14 169
Total special items	**94 234**	**-32 996**	**-16 224**	**179 355**	**-428 711**	**297 646**	**684 931**	**-234 748**	**25 763**
Special items after tax	**68 891**	**-23 735**	**-12 048**	**136 299**	**-393 699**	**235 494**	**561 430**	**-175 174**	**21 017**
Net profit	**351 829**	**168 828**	**470 885**	**958 116**	**147 371**	**481 442**	**1 903 375**	**1 215 477**	**1 128 787**
Reportet tax on profit	129 431	65 874	163 217	302 667	13 106	127 062	418 695	413 364	254 900
Profit before tax	481 260	234 702	634 102	1 260 783	160 477	608 504	2 322 070	1 628 841	1 383 687
Effetiv tax rate	**26,89 %**	**28,07 %**	**25,74 %**	**24,01 %**	**8,17 %**	**20,88 %**	**18,03 %**	**25,38 %**	**18,42 %**

SALM reformulated balance sheet

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-current assets									
Licences and rights	845 178	914 116	935 916	1 406 483	1 483 752	1 702 152	2 030 710	2 451 271	2 466 171
Land, buildings, and operating consumables	58 342	66 864	102 624	179 364	206 409	233 732	473 408	489 496	617 182
PPE	273 569	319 847	403 979	636 720	845 581	947 824	1 248 820	1 336 126	1 554 914
Vessels, vehvles, etc.	16 311	29 374	26 684	55 951	74 455	87 247	137 096	191 953	239 863
Capitalized Operating leases	22 318	20 344	335 483	370 708	439 878	447 266	14 758	8 133	95 674
Other receivables	5 316	5 485	12 720	12 276	4 609	4 029	5 225	13 403	6 840
Investment in associates	258 203	257 615	268 508	866 809	918 868	948 575	402 338	523 711	627 681
Total non-current assets, excl. Goodwill	**1 479 237**	**1 613 645**	**2 085 914**	**3 528 311**	**3 973 552**	**4 370 825**	**4 312 355**	**5 014 093**	**5 608 325**
Goodwill	197 965	196 932	205 458	306 999	433 348	433 348	433 348	447 372	447 372
Total non-current assets, incl. Goodwill	**1 677 202**	**1 810 577**	**2 291 372**	**3 835 310**	**4 406 900**	**4 804 173**	**4 745 703**	**5 461 465**	**6 055 697**
Current assets									
Biological assets	905 675	971 454	1 011 518	1 580 934	1 420 788	1 986 213	3 077 150	3 114 684	3 306 052
Other inventory	63 979	97 768	103 176	128 973	227 935	303 682	171 539	206 454	328 216
Trade receivables	147 193	148 596	252 155	409 707	505 280	660 944	662 149	888 219	815 540
Other receivables	37 785	33 604	73 163	136 266	144 993	245 501	217 584	292 644	258 268
Parent company receivables	165	552	84	-	-	-	-	-	-
Total current assets	**1 154 797**	**1 251 974**	**1 440 096**	**2 255 880**	**2 298 996**	**3 196 340**	**4 128 422**	**4 502 001**	**4 708 076**
Non-interest bearing debt									
Trade payables	98 713	133 022	204 394	351 042	412 802	762 765	515 856	409 485	649 274
Tax payables	89 867	46 271	146 293	148 088	66 399	7 008	25 843	321 839	292 320
Public charges payables	22 076	19 137	19 710	48 023	52 980	43 192	93 532	143 757	153 262
Other current liabilities	44 652	59 837	43 627	106 845	126 195	153 515	192 556	381 226	488 996
Total non-interest bearing debt, excl. Deferred tax	**255 308**	**258 267**	**414 024**	**653 998**	**658 376**	**966 480**	**827 787**	**1 256 307**	**1 583 852**
Deferred tax	460 067	481 813	498 508	787 188	738 475	872 398	1 199 557	1 262 594	1 230 815
Total non-interest bearing debt, incl. Deferred tax	**715 375**	**740 080**	**912 532**	**1 441 186**	**1 396 851**	**1 838 878**	**2 027 344**	**2 518 901**	**2 814 667**
Net operating working capital	**899 489**	**993 707**	**1 026 072**	**1 601 882**	**1 640 620**	**2 229 860**	**3 300 635**	**3 245 694**	**3 124 224**
Invested capital, excl. Goodwill	**1 918 659**	**2 125 539**	**2 613 478**	**4 343 005**	**4 875 697**	**5 728 287**	**6 413 433**	**6 997 193**	**7 501 734**
Goodwill	197 965	196 932	205 458	306 999	433 348	433 348	433 348	447 372	447 372
Invested capital, incl. Goodwill	**2 116 624**	**2 322 471**	**2 818 936**	**4 650 004**	**5 309 045**	**6 161 635**	**6 846 781**	**7 444 565**	**7 949 106**
Equity and debt									
Equity	**1 287 327**	**1 315 113**	**1 699 806**	**2 469 367**	**2 214 611**	**2 967 713**	**5 060 783**	**5 137 277**	**5 227 040**
Net-interest bearing debt									
Debt to credit institutions (current)	88 394	183 999	118 073	51 431	501 754	596 288	397 186	276 667	140 421
Debt to credit institutions (non-current)	687 336	758 171	746 071	1 760 567	2 028 537	2 098 240	1 974 521	1 780 174	2 371 338
Leasing liabilities and other non-current liabilities	77 319	65 764	68 070	108 606	173 460	125 188	471 716	411 388	390 035
Pension liabilities	4 507	5 233	5 784	1 714	1 213	528	-	-	-
Capitalized Operating leases	22 318	20 344	335 483	370 708	439 878	447 266	14 758	8 133	95 674
Interest bearing debt	**879 874**	**1 033 511**	**1 273 481**	**2 293 026**	**3 144 842**	**3 267 510**	**2 858 181**	**2 476 362**	**2 997 468**
Securities									
Investment in share and other securities	1 001	975	1 025	1 426	762	15 760	384	519	289
Pension fund assets	1 766	1 637	4 904	3 901	2 023	2 492	802	1 592	1 397
Bank deposits, cash and cash equivalents	47 809	23 541	148 424	107 062	47 621	55 336	1 070 998	166 963	273 696
Interest bearing assets	**50 576**	**26 153**	**154 353**	**112 389**	**50 406**	**73 588**	**1 072 184**	**169 074**	**275 382**
Net interest bearing debt (NIBD)	**829 298**	**1 007 358**	**1 119 128**	**2 180 637**	**3 094 436**	**3 193 922**	**1 785 997**	**2 307 288**	**2 722 086**
Invested capital	**2 116 625**	**2 322 471**	**2 818 934**	**4 650 004**	**5 309 047**	**6 161 635**	**6 846 780**	**7 444 565**	**7 949 126**

Appendix 3.2 – Key financial and liquidity ratios GSF and peers

GSF

Average numbers	2007	2008	2009	2010	2011	2012	2013	2014	2015
Invested capital	2 423 854	2 443 210	2 605 412	2 904 253	3 137 439	3 179 043	3 331 255	3 722 316	4 101 890
NIBD	1 157 771	1 345 867	1 453 900	1 225 840	1 301 162	1 577 354	1 580 362	1 617 078	1 872 173
Equity	1 266 083	1 097 343	1 151 512	1 678 413	1 836 278	1 601 690	1 750 894	2 105 238	2 229 715

Key ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Turnover ratio invested capital	0,44	0,61	0,62	0,85	0,67	0,66	0,73	0,74	1,13
FGEAR	0,91	1,23	1,26	0,73	0,71	0,98	0,90	0,77	0,84

After tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	7,14 %	0,93 %	4,35 %	14,57 %	4,70 %	-4,31 %	8,39 %	8,02 %	-1,19 %
Profit margin	16,23 %	1,53 %	6,97 %	17,14 %	7,02 %	-6,55 %	11,49 %	10,85 %	-1,05 %
NBC	2,10 %	4,23 %	12,64 %	-2,76 %	-0,14 %	1,43 %	5,23 %	3,76 %	2,78 %
ROE	11,7 %	-3,1 %	-6,1 %	27,2 %	8,1 %	-10,0 %	11,3 %	11,3 %	-4,5 %

Before tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	4,93 %	1,20 %	5,98 %	19,80 %	7,45 %	-5,92 %	10,61 %	9,35 %	2,51 %
Profit margin	11,20 %	1,97 %	9,59 %	23,30 %	11,12 %	-9,01 %	14,53 %	12,65 %	2,21 %

Liquidity ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Current ratio				2,95	1,59	1,81	2,24	2,30	2,34
Quick raatio				0,20	0,13	0,24	0,16	0,14	0,29
Days receivables outstanding				34	43	31	23	29	33
Days payables outstanding				95	93	83	106	98	64
Solvency ratio				0,49	0,40	0,36	0,43	0,43	0,37
Interest coverage ratio				11,09	3,77	-1,69	3,32	3,27	0,78

MHG

Average numbers	2007	2008	2009	2010	2011	2012	2013	2014	2015
Invested capital	19 075 600	18 288 654	17 070 278	17 495 039	18 270 598	17 697 685	21 124 498	26 176 169	29 968 510
NIBD	6 591 600	7 234 304	6 527 678	5 479 439	6 564 098	6 432 135	7 107 048	10 643 969	13 515 660
Equity	12 484 000	11 054 300	10 542 550	12 015 600	11 706 400	11 265 400	14 017 500	15 532 250	16 452 700

Key ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Turnover ratio invested capital	0,74	0,74	0,86	0,89	0,88	0,88	0,92	0,98	0,94
FGEAR	0,53	0,65	0,62	0,46	0,56	0,57	0,51	0,69	0,82

After tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	0,99 %	2,99 %	7,33 %	14,20 %	12,70 %	1,96 %	11,48 %	8,35 %	7,02 %
Profit margin	1,33 %	4,05 %	8,52 %	16,05 %	14,39 %	2,23 %	12,49 %	8,51 %	7,49 %
NBC	-3,90 %	0,16 %	23,94 %	-4,37 %	2,41 %	-1,51 %	1,83 %	8,39 %	8,28 %
ROE	3,6 %	4,8 %	-3,0 %	22,7 %	18,5 %	3,9 %	16,4 %	8,3 %	6,0 %

Before tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	3,94 %	3,41 %	9,34 %	19,43 %	15,66 %	3,74 %	16,33 %	16,90 %	11,08 %
Profit margin	5,30 %	4,63 %	10,86 %	21,95 %	17,75 %	4,26 %	17,77 %	17,23 %	11,83 %

Liquidity ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Current ratio				3,63	3,40	2,92	3,15	3,22	3,34
Quick raatio				0,10	0,10	0,10	0,12	0,25	0,12
Days receivables outstanding				42	43	44	47	47	48
Days payables outstanding				65	64	55	67	57	51
Solvency ratio				0,53	0,46	0,49	0,47	0,39	0,42
Interest coverage ratio				8,94	7,05	1,73	5,39	8,12	7,98

SALM

Average numbers	2007	2008	2009	2010	2011	2012	2013	2014	2015
Invested capital	2 116 624	2 219 548	2 570 704	3 734 470	4 979 524	5 735 340	6 504 208	7 145 673	7 696 835
NIBD	829 298	918 328	1 063 243	1 649 882	2 637 536	3 144 179	2 489 959	2 046 642	2 514 687
Equity	1 287 327	1 301 220	1 507 460	2 084 587	2 341 989	2 591 162	4 014 248	5 099 030	5 182 159

Key ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Turnover ratio invested capital	0,81	0,78	0,95	0,96	0,79	0,75	0,98	1,02	0,96
FGEAR	0,64	0,71	0,71	0,79	1,13	1,21	0,62	0,40	0,49

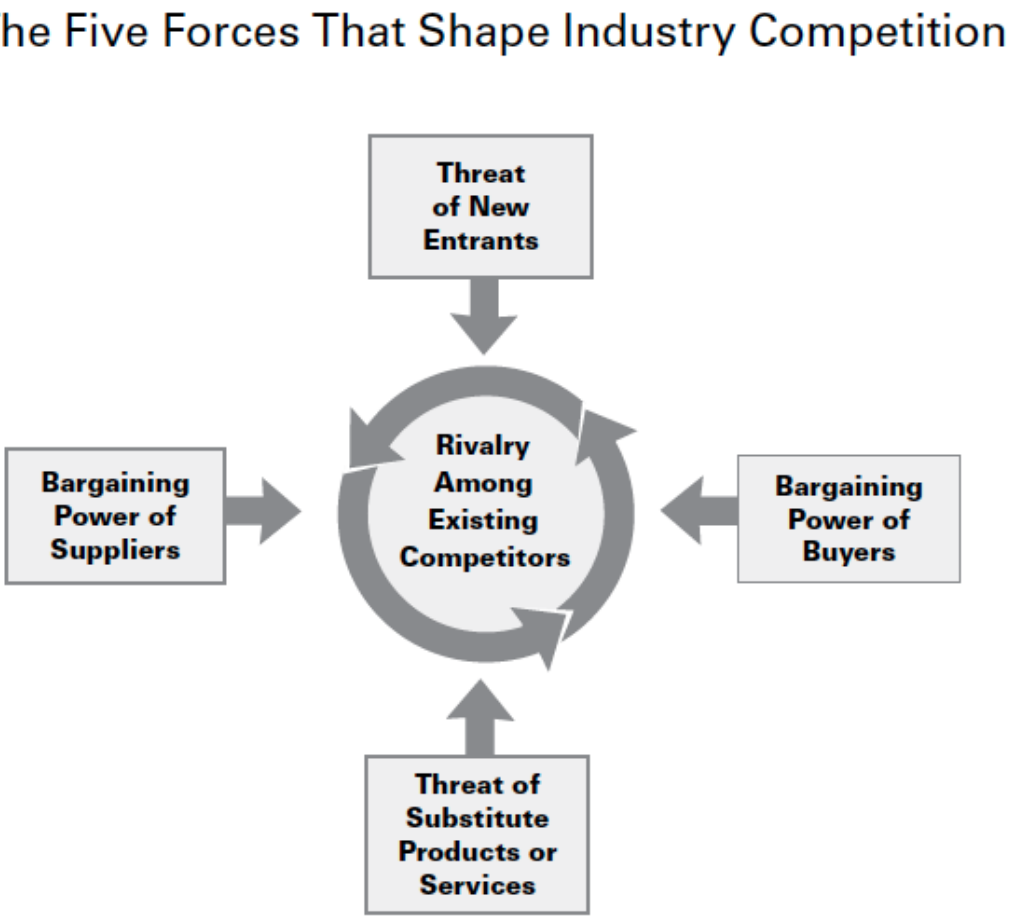
After tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	15,34 %	11,37 %	19,35 %	23,21 %	13,40 %	6,31 %	17,94 %	20,66 %	15,51 %
Profit margin	18,99 %	14,61 %	20,44 %	24,23 %	16,97 %	8,42 %	18,22 %	20,27 %	16,20 %
NBC	5,00 %	4,58 %	5,64 %	1,14 %	1,87 %	4,06 %	4,85 %	-8,56 %	3,40 %
ROE	22,0 %	16,2 %	29,0 %	40,7 %	26,4 %	9,0 %	26,1 %	32,4 %	21,4 %

Before tax	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROIC	20,98 %	15,80 %	26,06 %	30,54 %	14,59 %	7,98 %	21,88 %	27,68 %	19,01 %
Profit margin	25,98 %	20,31 %	27,52 %	31,88 %	18,47 %	10,64 %	22,22 %	27,16 %	19,86 %

Liquidity ratios	2007	2008	2009	2010	2011	2012	2013	2014	2015
Current ratio				3,35	2,02	2,08	4,24	3,05	2,89
Quick raatio				0,15	0,04	0,04	0,87	0,11	0,16
Days receivables outstanding				35	44	51	39	39	42
Days payables outstanding				60	70	78	72	85	82
Solvency ratio				0,40	0,33	0,37	0,51	0,51	0,47
Interest coverage ratio				22,99	7,35	3,05	8,47	15,93	14,81

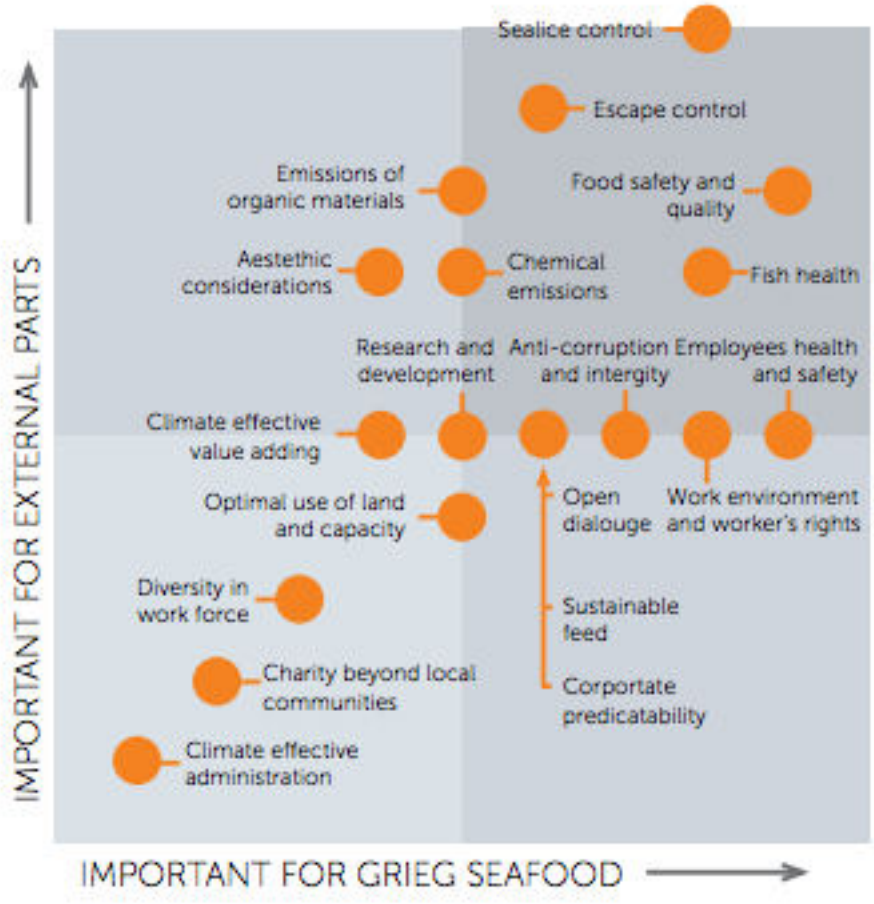
Part 4 – Strategic analysis

Appendix 4.1 – Porters five forces model
Source: Porter (2008)



Appendix 4.2 - Materiality matrix

Source: GSF's Sustainability report 2014



<u>Description:</u> Gives an overview of the most important factors for sustainable operations and how important it is for Grieg Seafood and external parts in a comparison.

Appendix 4.3 Effects of the 2014 Russian Sanctions

Effect of Russian sanctions	Change in percent of total revenues
Grieg Seafood	**-7%**
Leroy Seafood	**-10%**
SalMar	**-2,7%**
Marine Harvest	**-9,2%**

Part 5 – Forecasting

Appendix 5.1 - Supply and demand regression inputs
Source: Kontali Analyse/ Frank Asche

Year	Global supply	Global demand	Price	Change in supply	Change in demand	Change in price
2001	988		25,99			
2002	1 057	859	23,36	7 %	0 %	-10 %
2003	1 146	926	21,24	8 %	8 %	-9 %
2004	1 207	992	22,57	5 %	7 %	6 %
2005	1 246	1 057	26,22	3 %	7 %	16 %
2006	1 266	1 058	32,41	2 %	0 %	24 %
2007	1 394	1 168	25,74	10 %	10 %	-21 %
2008	1 493	1 244	26,36	7 %	7 %	2 %
2009	1 468	1 294	30,96	-2 %	4 %	17 %
2010	1 447	1 264	37,34	-1 %	-2 %	21 %
2011	1 633	1 421	31,86	13 %	12 %	-15 %
2012	2 003	1 763	26,57	23 %	24 %	-17 %
2013	2 050	1 813	39,56	2 %	3 %	49 %
2014	2 237	1 966	40,43	9 %	8 %	2 %
2015	2 326	2 061	42,26	4 %	5 %	5 %

Appendix 5.2. Supply and demand forecast
Source: Kontali Analyse, Nordea Markets, Pareto, Fonds Finans, DNB Markets.

Sypply estimates	2016E	2017E	2018E	2019E
Nordea Markets	-6,8 %	-1,6 %	1,6 %	
Pareto	0,0 %	0,0 %	5,0 %	6,0 %
FondsFinans	-1,5 %	1,2 %		
DNB Markets	-0,3 %	2,2 %		
Average	**-2,2 %**	**0,5 %**	**3,3 %**	**6,0 %**
Our estimates	-3 %	1 %	3 %	5 %

Supply estimates	2016E	2017E	2018E	2019E	2020E
Our estimates	-3 %	1 %	3 %	5 %	6 %

Demand estimates	2016E	2017E	2018E	2019E	2020E
Pareto	8,0 %	8,0 %	8,0 %	8,0 %	8,0 %
FondsFinans	6,1 %				
Avergae	**7,1 %**	**8,0 %**	**8,0 %**	**8,0 %**	**8,0 %**
Our estimates	6 %	5 %	5 %	5 %	5 %

Demand estimates	2016E	2017E	2018E	2019E	2020E
Our estimates	6 %	5 %	5 %	5 %	5 %

Appendix 5.3 Analysts price forecast
Source: Nordea Markets, FondsFinans, DNB Markets, Pareto.

Price estimates	2016E	2017E	2018E
Nordea Markets	50	50	
FondsFinans	49,5		
DNB Markets	46	47	
Pareto	46	46,5	47
Average	47,88	47,83	47,00

Appendix 5.4 – GSF historical sales premium, and peer average

Sales premium GSF	2007	2008	2009	2010	2011	2012	2013	2014	Average
Average salmon price	25,74	26,36	30,96	37,34	31,86	26,57	39,56	40,43	32,35
Revenue per kg	25,14	28,55	33,08	38,10	34,07	29,29	41,41	41,17	33,85
Premium	0,98	1,08	1,07	1,02	1,07	1,10	1,05	1,02	1,05

Sales premium Peers	2007	2008	2009	2010	2011	2012	2013	2014	Average
Avg. Revenue per kg Peers	33,74	33,74	37,66	47,55	41,82	37,64	52,15	53,33	42,20
Avg. Premium peers	1,31	1,28	1,22	1,27	1,31	1,42	1,32	1,32	1,31

Appendix 5.5 – Forecast assumptions

Income statement:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
Operating revenue	1 021 810	1 477 029	1 612 619	2 446 490	2 046 991	2 050 065	2 404 215	2 665 284	4 608 667	
Other revenue	46 542	10 474	8 826	9 398	16 769	28 164	20 827	73 758		
Cost of materials	-746 174	-903 678	-900 581	-932 118	-1 087 430	-1 202 314	-968 978	-1 153 526	-2 738 926	
% of operating revenue	73,02 %	61,18 %	55,85 %	38,10 %	53,12 %	58,65 %	40,30 %	43,28 %	59,43 %	53,66 %
Salaries and personnel	-136 246	-165 148	-193 300	-238 409	-238 382	-276 103	-302 223	-339 592	-409 432	
% of operating revenue	13,33 %	11,18 %	11,99 %	9,74 %	11,65 %	13,47 %	12,57 %	12,74 %	8,88 %	11,73 %
Other operating costs	-196 735	-326 972	-409 728	-592 044	-598 362	-635 885	-669 303	-767 269	-1 220 821	
% of operating revenue	19,25 %	22,14 %	25,41 %	24,20 %	29,23 %	31,02 %	27,84 %	28,79 %	26,49 %	26,04 %
Depreciation	-73 700	-114 777	-122 192	-120 105	-142 387	-164 043	-138 890	-143 501	-176 386	
% of PPE	11,53 %	14,45 %	14,92 %	13,00 %	12,64 %	14,37 %	11,53 %	10,07 %	11,49 %	12,67 %
Tax on operating profit								25,36 %		

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Operating revenue	5 656 285	6 207 104	6 737 304	7 211 181	7 496 859	7 921 535	8 301 343
Other revenue							
Cost of materials							
% of operating revenue	55,00 %	54,00 %	53,50 %	53,00 %	53,00 %	53,00 %	53,00 %
Salaries and personnel							
% of operating revenue	8,50 %	8,50 %	8,50 %	8,50 %	8,50 %	8,50 %	8,50 %
Other operating costs							
% of operating revenue	25 %	25 %	25 %	25 %	25 %	25 %	25 %
Depreciation							
% of PPE	11 %	11 %	11 %	11 %	11 %	11 %	11 %
Tax on operating profit	25,36 %	25,36 %	25,36 %	25,36 %	25,36 %	25,36 %	25,36 %

Balance sheet:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
Non-current assets										
Licenses	849 838	831 921	818 340	926 170	987 596	976 740	994 066	1 066 184	1 093 338	
% revenue	79,55 %	55,93 %	50,47 %	37,71 %	47,85 %	47,00 %	40,99 %	38,93 %	23,57 %	46,89 %
Other intangible assets	-	8 205	5 578	3 160	4 618	3 800	4 545	11 517	16 993	
% revenue	0,00 %	0,55 %	0,34 %	0,13 %	0,22 %	0,18 %	0,19 %	0,42 %	0,37 %	0,27 %
PPE	639 092	794 346	819 110	923 546	1 126 699	1 141 317	1 204 207	1 424 562	1 534 770	
% of revenue	59,82 %	53,40 %	50,52 %	37,61 %	54,59 %	54,92 %	49,66 %	52,01 %	33,09 %	49,51 %
Investment in associates	10 879	11 579	13 619	33 456	37 387	49 229	41 190	41 937	25 947	
% of revenue	1,02 %	0,78 %	0,84 %	1,36 %	1,81 %	2,37 %	1,70 %	1,53 %	0,56 %	1,33 %
Current assets										
Inventories	34 927	44 592	49 180	58 409	67 355	65 692	74 015	88 250	90 867	
% of COGS	4,68 %	4,93 %	5,46 %	6,27 %	6,19 %	5,46 %	7,64 %	7,65 %	3,32 %	5,73 %
Biological assets	1 067 574	1 073 341	1 367 061	1 564 041	1 404 934	1 310 142	1 766 332	1 844 097	1 929 115	
% of revenue	99,93 %	72,16 %	84,31 %	63,69 %	68,08 %	63,04 %	72,84 %	67,33 %	41,59 %	70,33 %
Accounts receivables	111 893	157 876	188 052	265 350	223 682	124 657	177 814	254 043	581 904	
% of revenue	10,47 %	10,61 %	11,60 %	10,80 %	10,84 %	6,00 %	7,33 %	9,27 %	12,55 %	9,94 %
Other current receivables	82 578	48 488	57 051	43 265	64 581	51 299	54 015	57 287	145 767	
% of revenue	7,73 %	3,26 %	3,52 %	1,76 %	3,13 %	2,47 %	2,23 %	2,09 %	3,14 %	3,26 %
Non-interest bearing debt										
Accounts payables	197 356	214 687	233 443	253 305	303 196	246 119	317 753	300 521	653 083	
% of COGS	26,45 %	23,76 %	25,92 %	27,18 %	27,88 %	20,47 %	32,79 %	26,05 %	23,84 %	26,04 %
Tax payable	9 402	-	-	-	-	-	1 471	50 645	24 545	
kept at 2015 level										
Accrued salary expenses and public tax payables	8 619	13 611	13 869	25 104	22 514	19 720	21 731	13 013	12 134	
% of revenue	0,81 %	0,92 %	0,86 %	1,02 %	1,09 %	0,95 %	0,90 %	0,48 %	0,26 %	0,81 %
Derivatives and other financial instruments	50	122 532	9 672	1 605	7 887	13 805	11 631	23 475	27 104	
% of revenue	0,00 %	8,24 %	0,60 %	0,07 %	0,38 %	0,66 %	0,48 %	0,86 %	0,58 %	1,32 %
Other current reveivables	25 535	23 702	72 400	41 674	48 452	53 982	54 761	109 803	122 795	
% of COGS	3,42 %	2,62 %	8,04 %	4,47 %	4,46 %	4,49 %	5,65 %	9,52 %	4,48 %	5,24 %
Deferred taxes	281 294	207 020	331 995	531 498	486 702	426 781	557 350	559 542	539 040	
Growth rate		-26,40 %	60,37 %	60,09 %	-8,43 %	-12,31 %	30,59 %	0,39 %	-3,66 %	12,58 %
Net operating working capital	1 056 010	949 765	1 331 960	1 609 377	1 378 503	1 218 164	1 664 829	1 746 220	1 907 992	
% of revenue	98,84 %	63,85 %	82,15 %	65,53 %	66,80 %	58,62 %	68,65 %	63,75 %	41,13 %	

	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Non-current assets							
Licenses							
% revenue	18 %	18 %	18 %	18 %	18 %	18 %	18 %
Other intangible assets							
% revenue	0,30 %	0,30 %	0,30 %	0,30 %	0,30 %	0,30 %	0,30 %
PPE							
% of revenue	29 %	29 %	29 %	29 %	29 %	29 %	29 %
Investment in associates							
% of revenue	1,00 %	1,00 %	1,00 %	1,00 %	1,00 %	1,00 %	1,00 %
Current assets							
Inventories							
% of COGS	3,50 %	3,50 %	3,50 %	3,50 %	3,50 %	3,50 %	3,50 %
Biological assets							
% of revenue	40,00 %	40,00 %	40,00 %	40,00 %	40,00 %	40,00 %	40,00 %
Accounts receivables							
% of revenue	10 %	10 %	10 %	10 %	10 %	10 %	10 %
Other current receivables							
% of revenue	3,26 %	3,26 %	3,26 %	3,26 %	3,26 %	3,26 %	3,26 %
Non-interest bearing debt							
Accounts payables							
% of COGS	22 %	22 %	22 %	22 %	22 %	22 %	22 %
Tax payable	24 545	24 545	24 545	24 545	24 545	24 545	24 545
kept at 2015 level							
Accrued salary expenses and public tax payables							
% of revenue	0,81 %	0,81 %	0,81 %	0,81 %	0,81 %	0,81 %	0,81 %
Derivatives and other financial instruments							
% of revenue	0,58 %	0,58 %	0,58 %	0,58 %	0,58 %	0,58 %	0,58 %
Other current reveivables							
% of COGS	4,50 %	4,50 %	4,50 %	4,50 %	4,50 %	4,50 %	4,50 %
Deferred taxes	539 040	539 040	539 040	539 040	539 040	539 040	539 040
Growth rate							
Net operating working capital	2 193 646	2 423 934	2 640 827	2 836 592	2 949 938	3 118 435	3 269 129
% of revenue	38,78 %	39,05 %	39,20 %	39,34 %	39,35 %	39,37 %	39,38 %

Appendix 5.6 – GSF operating tax rate

2014	Rogaland	Finmark	BC	Shetland	Total
Statutory tax rate	27 %	27 %	26 %	20 %	
EBIT	77 835	205 934	-47 810	81 087	317 046
Operating tax	-21 015	-55 602	12 431	-16 217	-80 404
Profit after tax	56 820	150 332	-35 379	64 870	236 642
Operating tax rate					**25,36 %**

Part 6 – Cost of capital

Appendix 6.1 – Historical capital structure GSF and peers

GSF	31.12.2007	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013	31.12.2014	31.12.2015	04.04.2016
Shareprice	15,4	3,3	10,2	18,7	4,33	12,35	24,5	28,5	29,8	42,6
Shares outstanding	76 512	76 512	111 662	111 662	111 662	111 662	111 662	111 662	111 662	111 662
MVE	**1 178 285**	**252 490**	**1 138 952**	**2 088 079**	**483 496**	**1 379 026**	**2 735 719**	**3 182 367**	**3 327 528**	**4 756 801**
BVE	1 266 083	928 603	1 374 421	1 982 405	1 690 150	1 513 230	1 988 557	2 221 919	2 242 596	2 242 596
NIBD	1 157 771	1 533 963	1 373 838	1 077 842	1 524 482	1 630 225	1 530 499	1 703 656	1 926 293	1 926 293
MVE/(MVE+NIBD)	**0,50**	**0,14**	**0,45**	**0,66**	**0,24**	**0,46**	**0,64**	**0,65**	**0,63**	**0,71**
BVE/(BVE+NIBD)	0,52	0,38	0,50	0,65	0,53	0,48	0,57	0,57	0,54	0,54

	Entire period	5 years	3 years
Average MV	0,51	0,56	0,66
Average BV	0,53	0,54	0,55

MHG	31.12.2007	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013	31.12.2014	31.12.2015	04.04.2016
Shareprice	28,3	10,5	42,31	61,7	25,86	51,8	73,85	102,9	119,6	128,7
Shares outstanding	347 889	347 889	357 489	357 490	358 114	374 834	410 378	410 378	450 086	450 086
MVE	**9 845 259**	**3 652 835**	**15 125 360**	**22 057 133**	**9 260 829**	**19 416 409**	**30 306 397**	**42 227 871**	**53 830 244**	**57 926 023**
NIBD	6 591 600	7 877 009	5 178 347	5 780 531	7 347 665	5 516 605	8 697 491	12 590 447	14 440 872	14 440 872
MVE/(MVE+NIBD)	**0,60**	**0,32**	**0,74**	**0,79**	**0,56**	**0,78**	**0,78**	**0,77**	**0,79**	**0,80**

	Entire period	5 year	3 year
Average	0,69	0,75	0,78

SALM	31.12.2007	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013	31.12.2014	31.12.2015	04.04.2016
Shareprice	42,1	26	46	61,5	30	46	74	127,5	155	204,5
Shares outstanding	103 000	103 000	103 000	103 000	103 000	113 300	113 300	113 300	113 300	113 300
MVE	**4 336 300**	**2 678 000**	**4 738 000**	**6 334 500**	**3 090 000**	**5 211 800**	**8 384 200**	**14 445 750**	**17 561 500**	**23 169 850**
NIBD	829 298	1 007 358	1 119 128	2 180 637	3 094 436	3 193 922	1 785 997	2 307 288		
MVE/(MVE+NIBD)	**0,84**	**0,73**	**0,81**	**0,74**	**0,50**	**0,62**	**0,82**	**0,86**	**1,00**	**1,00**

	Entire period	5 year	3 year
Average	0,79	0,80	0,92

Appendix 6.2 – Historical yield on 10-year Norwegian government bonds

Year	10-year yield	5-year avg.	10-year avg.	15-year avg.
2015	1,57 %	2,38 %	**3,32 %**	4,04 %
2014	2,52 %			
2013	2,58 %			
2012	2,10 %			
2011	3,12 %			
2010	3,52 %			
2009	4 %			
2008	4,47 %			
2007	4,78 %			
2006	4,07 %			
2005	3,74 %			
2004	4,36 %			
2003	5,04 %			
2002	6,38 %			
2001	6,24 %			
2000	6,22 %			

Appendix 6.3 – Alternative adjustment to the raw beta

Adjusted beats

As mentioned above, changes in the capital structure will affect the beta of a company. An increase in financial leverage for example will increase the equity beta of the firm (Damodaran, 2012, p. 195). One way to adjust the company's beta is to take the raw beta, adjust it for the average 5-year capital structure and adjust it back to the company's target future capital structure. As we can see from table 6.2, GSF's average D/E over the last 5-years has been very close to their target D/E. Therefore, the adjustment has very little effect on the raw beta.

Beta adj.	Raw beta	D/E	Oper. Tax	Unlevered beta	Target D/E	Relevered beta
GSF	0,94	0,65	25,36 %	0,63	0,67	0,95

Table 6. 5 Beta adjusted for capital structure. Source: Own creation/ ARS GSF

Since OSEBX is not a very liquid stock index, and a very small index in terms of representing the entire market, we have also decided to calculate betas related to other Scandinavian stock indexes (OMX Stockholm 30, OMX Copenhagen 20 and OMX Helsinki). A combination of these indexes can make for a more representative market portfolio. The results can be found in table 6.3 below.

2011-2016	OSEBX	OMX S	OMX C	OMX H	Average
GSF	0,94	0,69	0,76	0,68	**0,77**
MHG	0,82	0,70	0,52	0,62	**0,67**
SALM	0,72	0,71	0,60	0,62	**0,66**

Table 6. 6 Betas related to different Scandinavian indexes. Source: Own creation/ Bloomberg.

We think these calculations result in betas that seems to be a little too low.

Appendix 6.4 – Cost of debt, alternative calculation of synthetic credit rating. Source: (Petersen & Plenborg, 2012, p. 271-281).

Financial ratios	Description	Measurment
EBIT interest coverage	EBIT/interest exp.	Company risk factor
EBITDA interest coverage	EBITDA/interest exp.	Company risk factor
Free Opearting CF/Total debt	FOCF/Total debt	Company risk factor
FFO/Total debt	EBITDA+DTL/Total debt	Company risk factor
Return on capital	ROIC	Profitability ratio
Operating income/revenue	Profit margin	Profitability ratio
Long term debt/capital	Non Current D/Total book cap.	Company risk factor
Total debt/capital	Total D/Total book cap.	Company risk factor

Financial ratios	High			Rating			Low
Three year median	AAA	AA	A	BBB	BB	B	CCC
EBIT interest coverage (X)	21,4	10,1	6,1	3,7	2,1	0,8	0,1
EBITDA interest coverage (X)	26,5	12,9	9,1	5,8	3,4	1,8	1,3
Free Opearting CF/Total debt (%)	84,2	25,2	15,0	8,5	2,6	-3,2	-12,9
FFO/Total debt (%)	128,8	55,4	43,2	30,8	18,8	7,8	1,6
Return on capital (%)	34,9	21,7	19,4	13,6	11,6	6,6	1,0
Operating income/revenue (%)	27,0	22,1	18,6	15,4	15,9	11,9	11,9
Long term debt/capital (%)	13,3	28,2	33,9	42,5	57,2	69,7	68,8
Total debt/capital (%)	22,9	37,7	42,5	48,2	62,6	74,8	87,7
Number of companies	**8**	**29**	**136**	**218**	**273**	**281**	**22**

Financial ratios	Median 2012-14	Measurment	AAA	AA	A	BBB	BB	B	CCC
EBIT interest coverage	3,27	Company risk					X		
EBITDA interest coverage	4,62	Company risk					X		
Free Opearting CF/Total debt	7,93 %	Company risk					X		
FFO/Total debt	37,27 %	Company risk				X			
Return on capital	8,02 %	Profitability					X		
Operating income/revenue	13,06 %	Profitability					X		
Long term debt/capital	35,32 %	Company risk				X			
Total debt/capital	56,68 %	Company risk					X		
Rating	**BB**								

Part 7 – Valuation

Appendix 7.1 – Multiples

	2016E				
GSF	DNB	Nordea	Fonds finans	Pareto	Average
EV/Sales	1,11	0,9	0,9	1,0	0,98
EV/EBITDA	6,8	4,5	6	5,8	5,78
EV/EBIT	8,6	5,4	7,5	7,0	7,13
P/B	1,55	1,4	1,2	1,85	1,50

	2016E				
MHG	DNB	Nordea	Fonds finans	Pareto	Average
EV/Sales	2,02	1,9	1,9	2,0	1,96
EV/EBITDA	8,6	7,8	8,8	8,8	8,50
EV/EBIT	10,6	9,3	10,8	10,7	10,35
P/B	2,94	2,7	2,5	3,1	2,81

	2016E				
SALM	DNB	Nordea	Fonds finans	Pareto	Average
EV/Sales	2,83	3,6	2,6	3,0	3,01
EV/EBITDA	8,4	9,1	8,7	9,7	8,98
EV/EBIT	9,7	10,6	10	11,0	10,33
P/B	3,29	3,8	3,1	3,84	3,51

	2016E				
LSG	DNB	Nordea	Fonds finans	Pareto	Avearge
EV/Sales	1,56	1,5	1,3	1,7	1,52
EV/EBITDA	6,7	6,6	8	7,6	7,23
EV/EBIT	8,0	7,7	9,8	8,9	8,60
P/B	2,03	2	1,9	2,57	2,13

2016E	GSF	MHG	SALM	LSG
EV/Sales	1,13	1,96	3,01	1,52
EV/EBITDA	9,85	8,50	8,98	7,23
EV/EBIT	13,63	10,35	10,33	8,60
EV/KG	92,40	165,32	146,70	112,82
P/B	1,84	2,81	3,51	2,13

2015	GSF	MHG	SALM	LSG
EV/Sales	1,07	2,42	2,73	1,38
EV/EBITDA	17,81	13,62	11,22	9,95
EV/EBIT	48,34	20,34	13,68	12,95
EV/KG	76,09	160,85	146,70	112,82
P/B	1,49	2,96	3,36	2,06

Multiple valuation	EV/Sales		EV/EBITDA		EV/EBIT		EV/Kilo		P/B	
	2015	2016E	2015	2016E	2015	2016E	2015	2016E	2015	2016E
MHG	2,42	1,96	13,62	8,50	20,34	10,35	160,85	165,32	2,96	2,81
SALM	2,73	3,01	11,22	8,98	13,68	10,33	146,70	193,98	3,36	3,51
LSG	1,38	1,52	9,95	7,23	12,95	8,60	112,82	133,54	2,06	2,13
Harmonic mean	2,00	1,99	11,41	8,16	15,04	9,69	137,00	160,49	2,67	2,70
Sales	4 638 370	5 656 015								
EBITDA			279 327	650 442						
EBIT					102 941	470 015				
Harvest volume							65 398	69 322		
Book value equity									2 237 511	2 588 328
Enterprise value	9 269 697	11 281 367	3 185 946	5 310 075	1 548 060	4 552 206	8 959 773	11 125 531		
NIBD+Minority shares	2 071 038	1 908 675	2 071 038	1 908 675	2 071 038	1 908 675	2 071 038	1 908 675	2 071 038	1 908 675
Estimated value equity	7 198 659	9 372 692	1 114 908	3 401 401	-522 978	2 643 531	6 888 735	9 216 857	5 982 039	6 985 641
Number of shares	111 662	111 662	111 662	111 662	111 662	111 662	111 662	111 662	111 662	111 662
Estimated share price	**64,47**	**83,94**	**9,98**	**30,46**	**-4,68**	**23,67**	**61,69**	**82,54**	**53,57**	**62,56**
Share price 04.04.2016	42,6	42,6	42,6	42,6	42,6	42,6	42,6	42,6	42,6	42,6
Potential upside/downsiden	51,33 %	97,04 %	-76,56 %	-28,49 %	-110,99 %	-44,43 %	44,82 %	93,76 %	25,76 %	46,86 %
High	94,9	135,2	15,5	32,4	0,2	26,5	75,7	103,3	67,3	81,3
Low	38,9	59,6	6,4	25,0	-6,6	19,1	47,5	65,8	41,2	49,3